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SR-L1-04122  
JSC-17402

# AgRISTARS

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A Joint Program for  
Agriculture and  
Resources Inventory  
Surveys Through  
Aerospace  
Remote Sensing

July 1981

## Supporting Research

### U.S. CROP CALENDARS IN SUPPORT OF THE EARLY WARNING PROJECT

T. Hodges

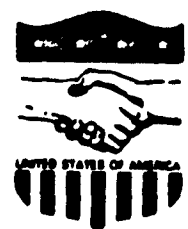
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Houston, Texas 77058

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16. Abstract  The appendices in this report provide the following data. Appendix A contains United States crop calendars produced for the Large Area Crop Inventory Experiment (LACIE). Appendix B contains crop calendar samples for Colorado, Iowa, Kansas, Minnesota, Montana, Nebraska, North Dakota, South Dakota, and Texas; these calendars are based on weekly Crop Reporting District (CRD) level observations of the percentage of various crops at several growth stages. Appendix C contains a sample of the statistical treatments of the weekly data. Appendix D contains 4 to 5 years of 50-percent dates for stages on a CRD level for Arkansas, Iowa, Kentucky, Louisiana, Michigan, Mississippi, Ohio and Wisconsin.					
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SR-L1-04122  
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U.S. CROP CALENDARS IN SUPPORT OF THE EARLY WARNING PROJECT

Job Order 71-302

This report describes Vegetation/Soils/Field Research activities  
of the Supporting Research project of the AgRISTARS program.

PREPARED BY

T. Hodges

APPROVED BY

  
\_\_\_\_\_  
T. C. Minter, Manager  
Development and Evaluation Department

LOCKHEED ENGINEERING AND MANAGEMENT SERVICES COMPANY, INC.

Under Contract NAS 9-15800

For

Earth Resources Research Division  
Space and Life Sciences Directorate  
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
LYNDON B. JOHNSON SPACE CENTER  
HOUSTON, TEXAS

July 1981

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## PREFACE

The Agriculture and Resources Inventory Surveys Through Aerospace Remote Sensing is an 8-year program of research, development, evaluation, and application of aerospace remote sensing for agricultural resources, which began in fiscal year 1980. This program is a cooperative effort of the National Aeronautics and Space Administration, the U.S. Agency for International Development, and the U.S. Departments of Agriculture, Commerce, and the Interior.

The work which is the subject of this document was performed within the Earth Resources Division, Space and Life Sciences Directorate, at the Lyndon B. Johnson Space Center, National Aeronautics and Space Administration. Under Contract NAS 9-15800, personnel of Lockheed Engineering and Management Services Company, Inc., performed the tasks which contributed to the completion of this research.

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## SUMMARY

The appendices in this report provide the following data. Appendix A contains United States crop calendars produced for the Large Area Crop Inventory Experiment (LACIE). Appendix B contains crop calendar samples for Colorado, Iowa, Kansas, Minnesota, Montana, Nebraska, North Dakota, South Dakota, and Texas; these calendars are based on weekly Crop Reporting District (CRD) level observations of the percentage of various crops at several growth stages. Appendix C contains a sample of the statistical treatments of the weekly data. Appendix D contains 4 to 5 years of 50-percent dates for stages on a CRD level for Arkansas, Iowa, Kentucky, Louisiana, Michigan, Mississippi, Ohio, and Wisconsin.

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Sestak, M. L.; Hodges, T; and Artley, J. A.: Variability of Crop Calendar Stage Dates. LEMSCO-14070, NASA/JSC (Houston), 1980.

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TABLE 1.- CROP AND GROWTH STAGE IDENTIFICATION NUMBERS

Numbers	Crops	Stages								
		1.0	2.0	2.5	3.0	3.5	4.0	5.0	6.0	7.0
1	Corn	Planting	Floral initiation		Tasseling or silking		Dent	Maturity	Harvest	
2	Soybeans	Planting	Rapid nodal development	Bloom	Podding		Full seed	Maturity	Harvest	
3	Sorghum	Planting	Full fifth leaf		Half bloom		Dough	Maturity	Harvest	
4	Small grains	Planting	Emergence	Tillering	Jointing	Flag leaf	Heading	Dough	Maturity	Harvest
5	Spring wheat									
6	Winter wheat									
7	Oats									
8	Barley									
9	Rye									
10	Rice	First cutting	Second cutting							
11	Alfalfa	First cutting	Second cutting							
12	Other hay	Planting	First square				Setting bolls	Open bolls	Harvest	

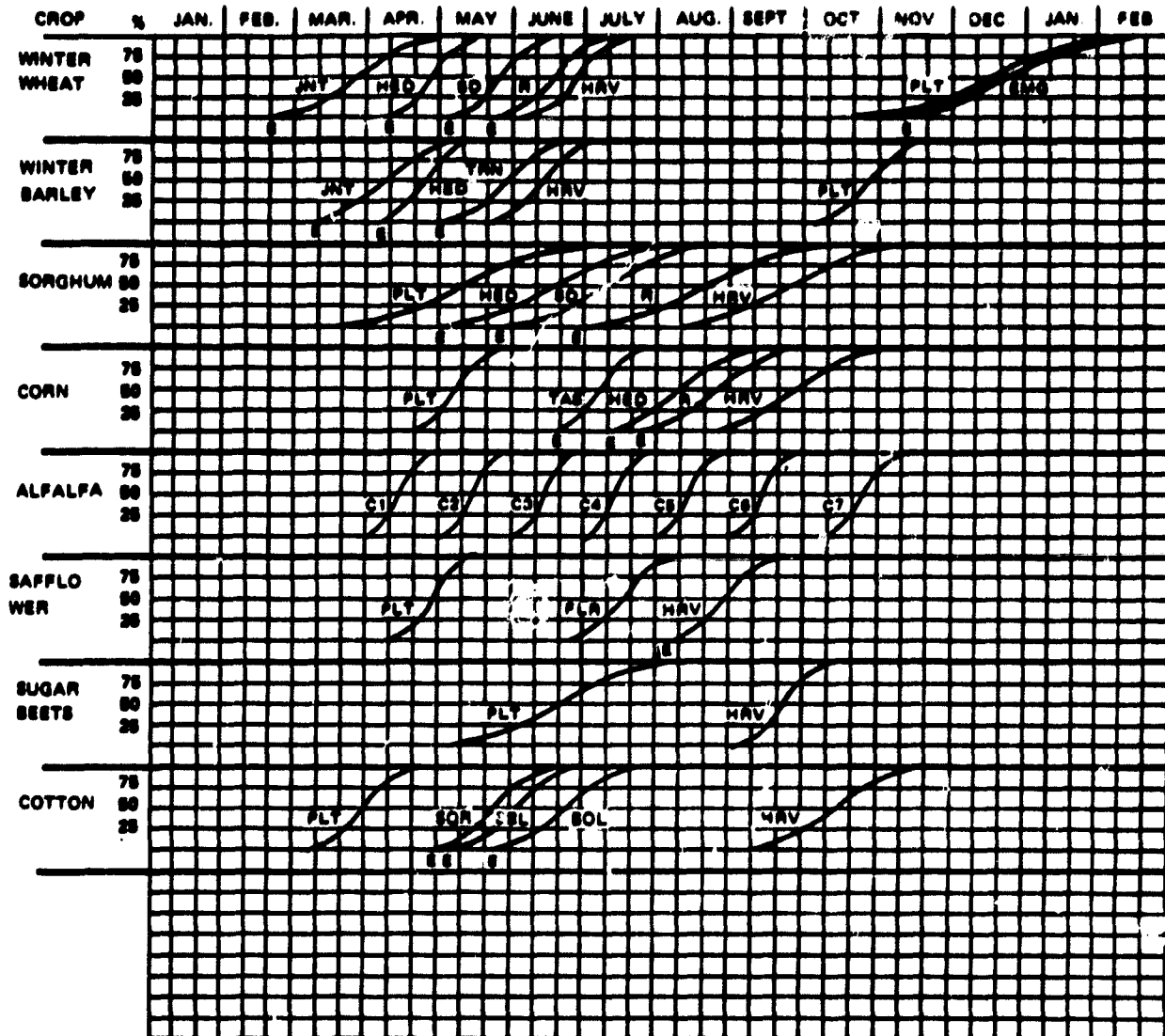
TABLE 2.- STATE IDENTIFICATION NUMBERS

Colorado (8)	Iowa (19)	Kansas (20)	Minnesota (27)	Montana (30)	Nebraska (31)	North Dakota (38)	South Dakota (46)	Texas (48)
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**APPENDIX A**  
**REPUBLISHED CROP CALENDARS**  
**FROM LACIE**

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CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
ARIZONA QRO 6 ESTIMATED AVERAGE CROP CALENDARS FROM USDA BULLETIN 263



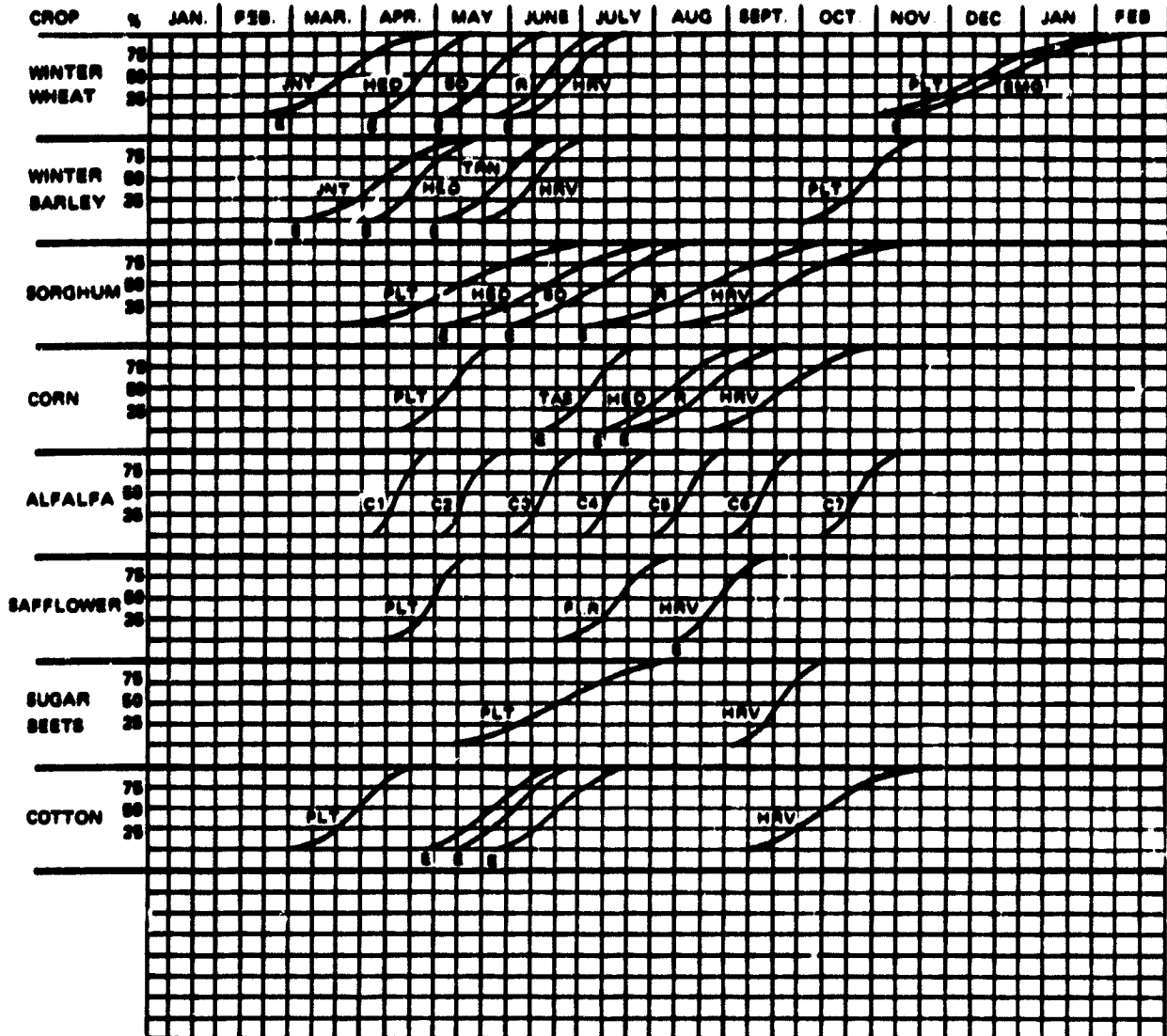
LEGEND

E	Under stage name, indicates rough estimate of date
EMG	Emergence
HED	Heading
HARV	Harvest
JNT	Jointing
PLT	Planting
R	Ripe
SD	Soft dough
TRN	Turning
C	Cut
FLR	Flowering
SQR	Squaring
SBL	Soft boll
BOL	Bolling



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CROP CALENDARS PLOTTED 01/09/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
ARIZONA CRD 7 ESTIMATED AVERAGE CROP CALENDARS FROM USDA BULLETIN 283

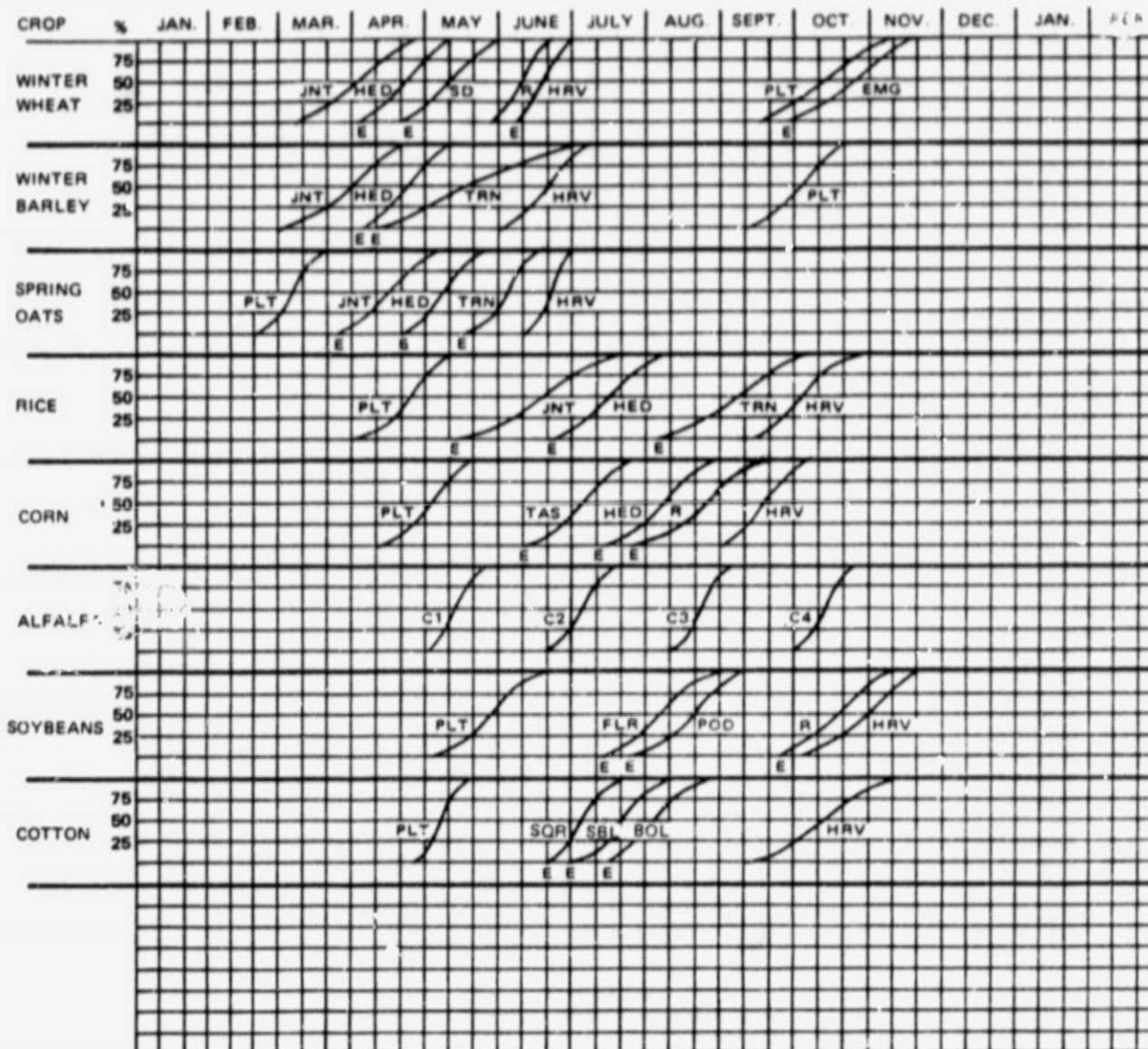


#### LEGEND

E	Under stage name, indicates rough estimate of date
EMG	Emergence
HED	Heading
HARV	Harvest
JNT	Jointing
PLY	Planting
R	Ripe
SD	Soft dough
TRN	Turning
C	Cut
SOL	Bolling
TAS	Tasseling
SQR	Squaring
SBL	Soft boll

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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
ARKANSAS CRD 6 ESTIMATED AVERAGE CROP CALENDARS FROM USDA BULLETIN 283

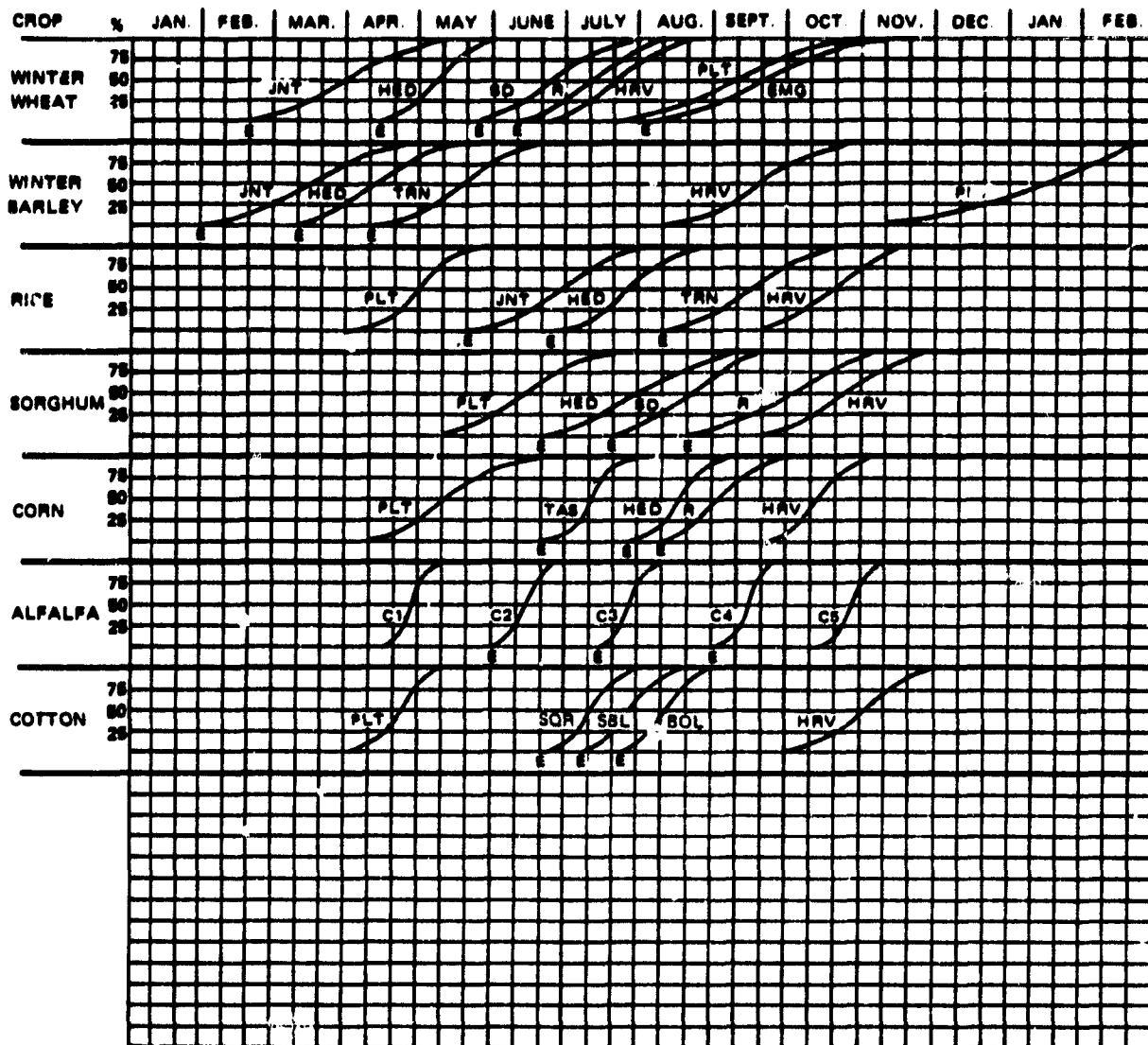


#### LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 C Cut  
 FLR Flowering  
 TAS Tasseling  
 SQR Squaring  
 SBL Soft boiling  
 BOL Boiling

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CHOP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
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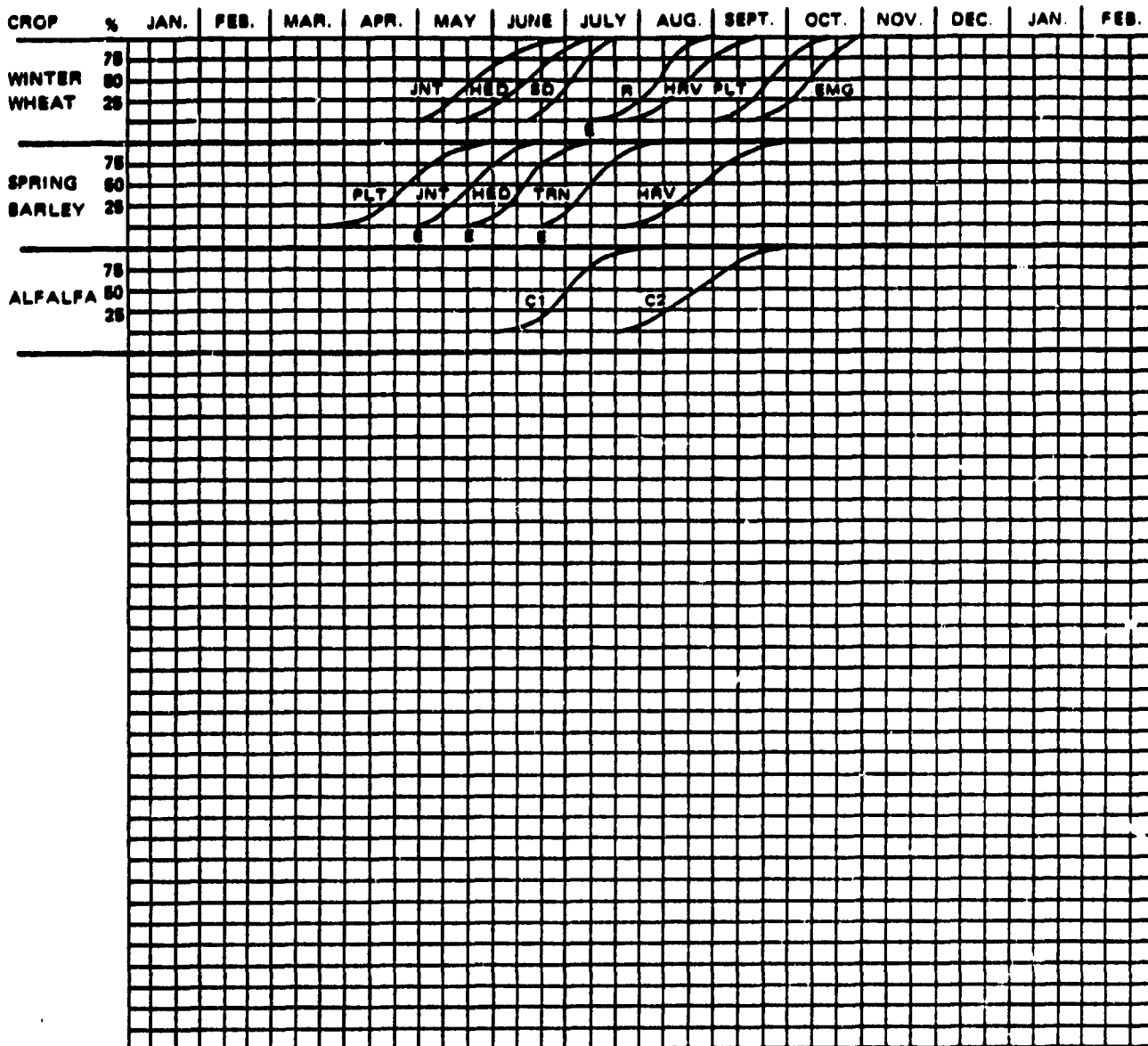


## LEGEND

E	Under stage name, indicates rough estimate of date
EMG	Emergence
HED	Heading
HRV	Harvest
JNT	Jointing
PLT	Planting
R	Ripe
SD	Soft dough
TRN	Turning
TAS	Tasseling
C	Cut
SQR	Squaring
SBL	Soft boll
BOL	Bolling

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PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
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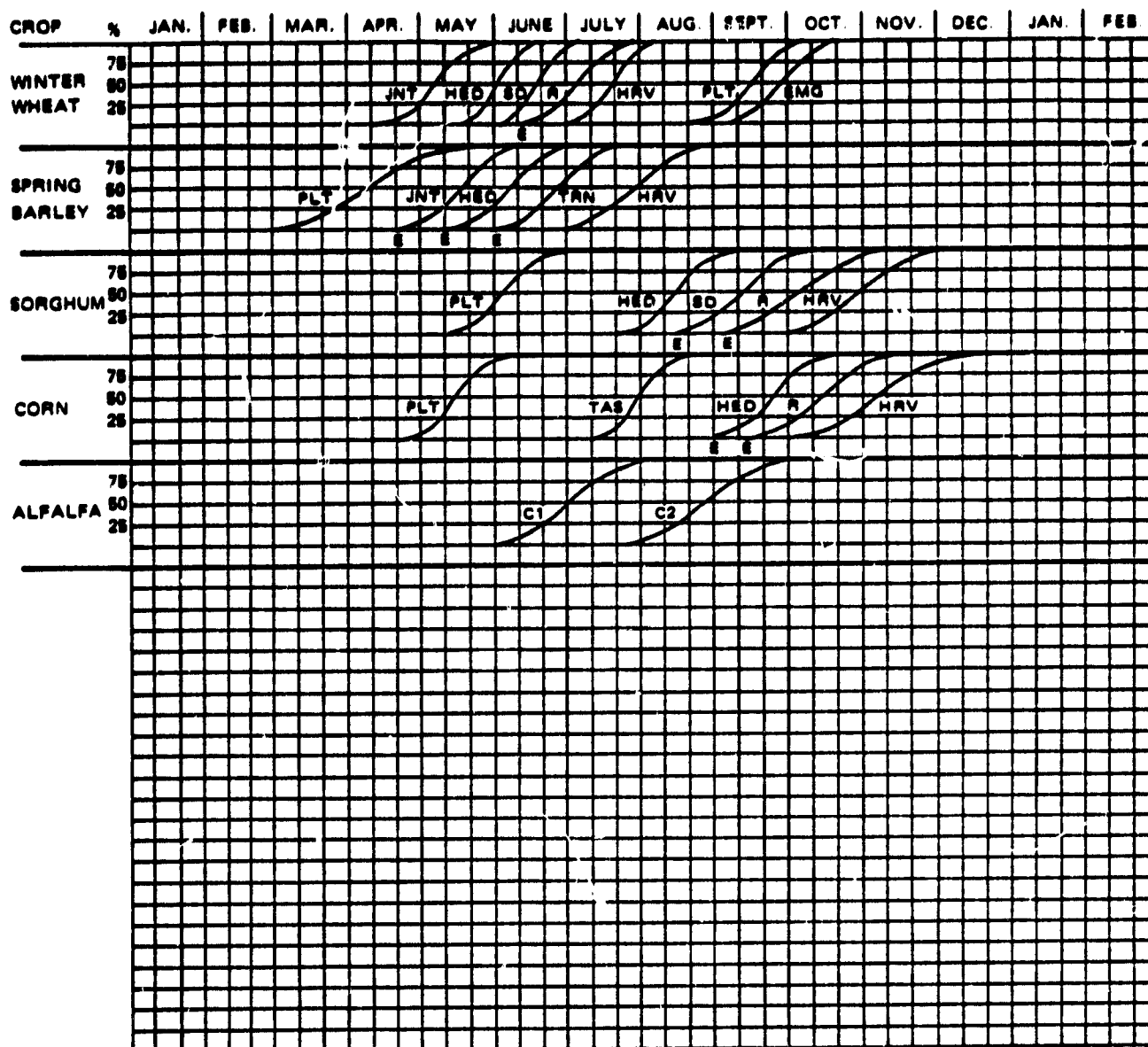


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 C Cut

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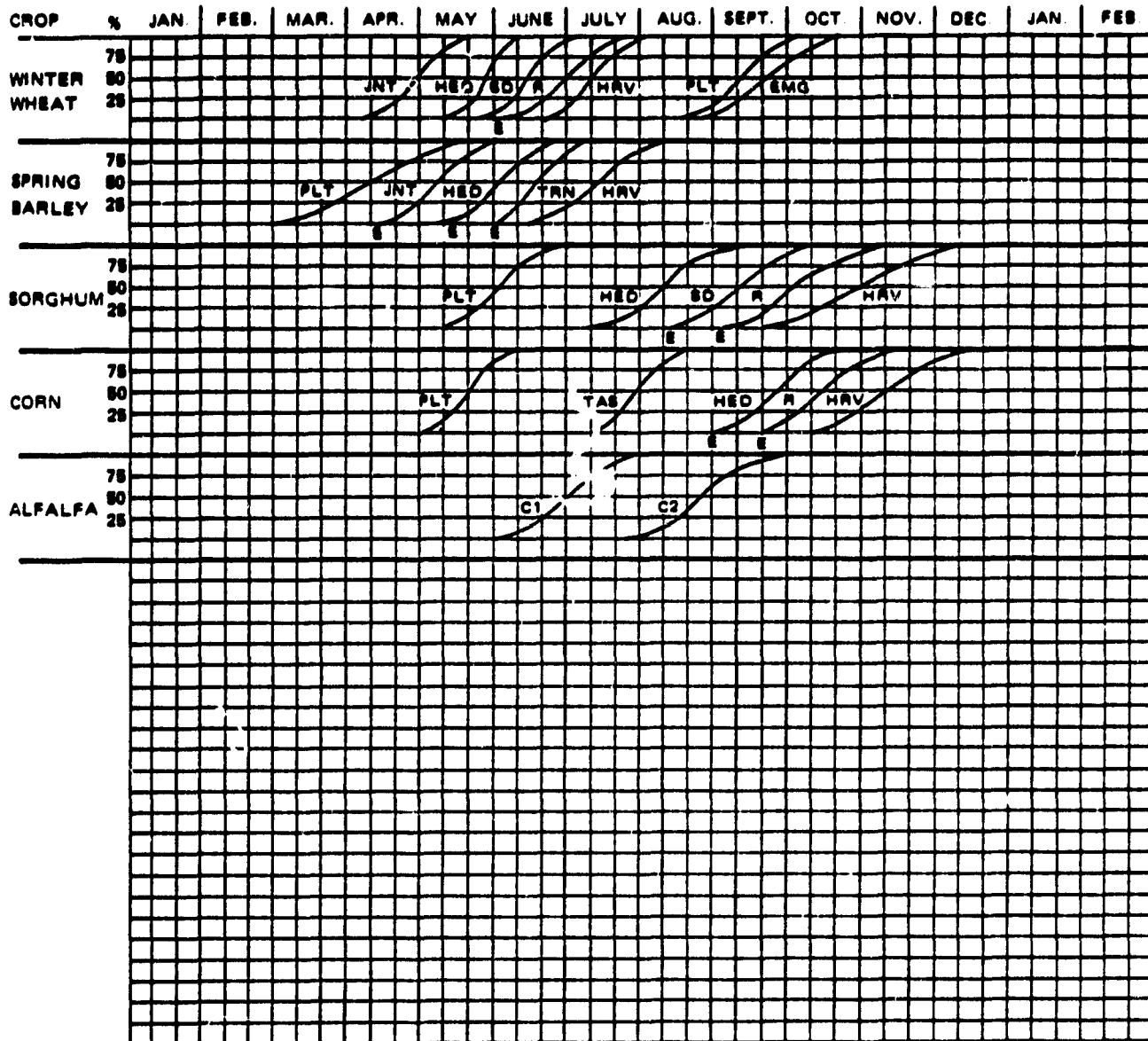


## LEGEND

E	Under stage name, indicates rough estimate of date
EMG	Emergence
HED	Heading
HRV	Harvest
JNT	Jointing
PLT	Planting
R	Ripe
SD	Soft dough
TRN	Turning
TAS	Tasseling
C	Cut

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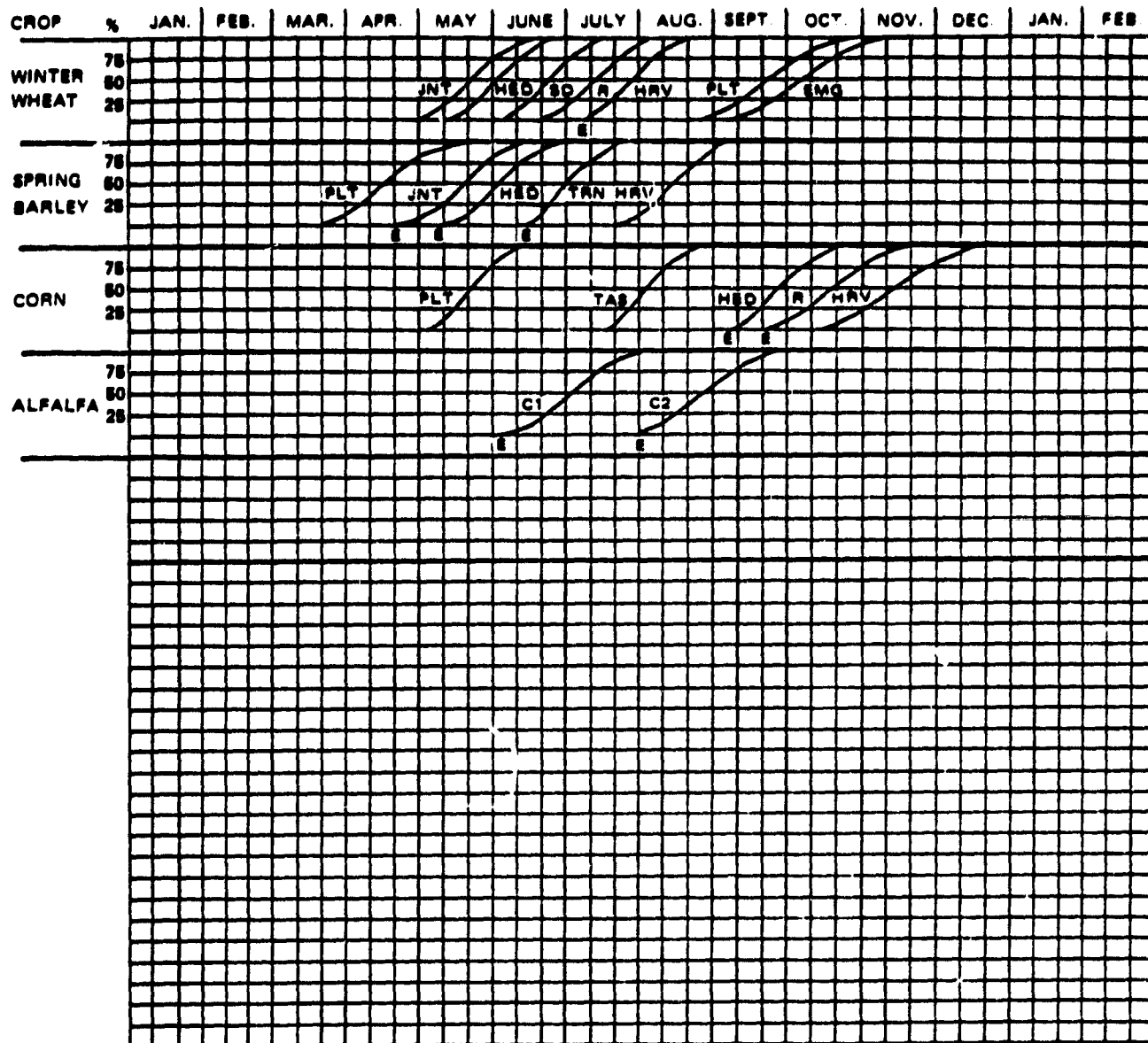


## LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasselling  
C Cut

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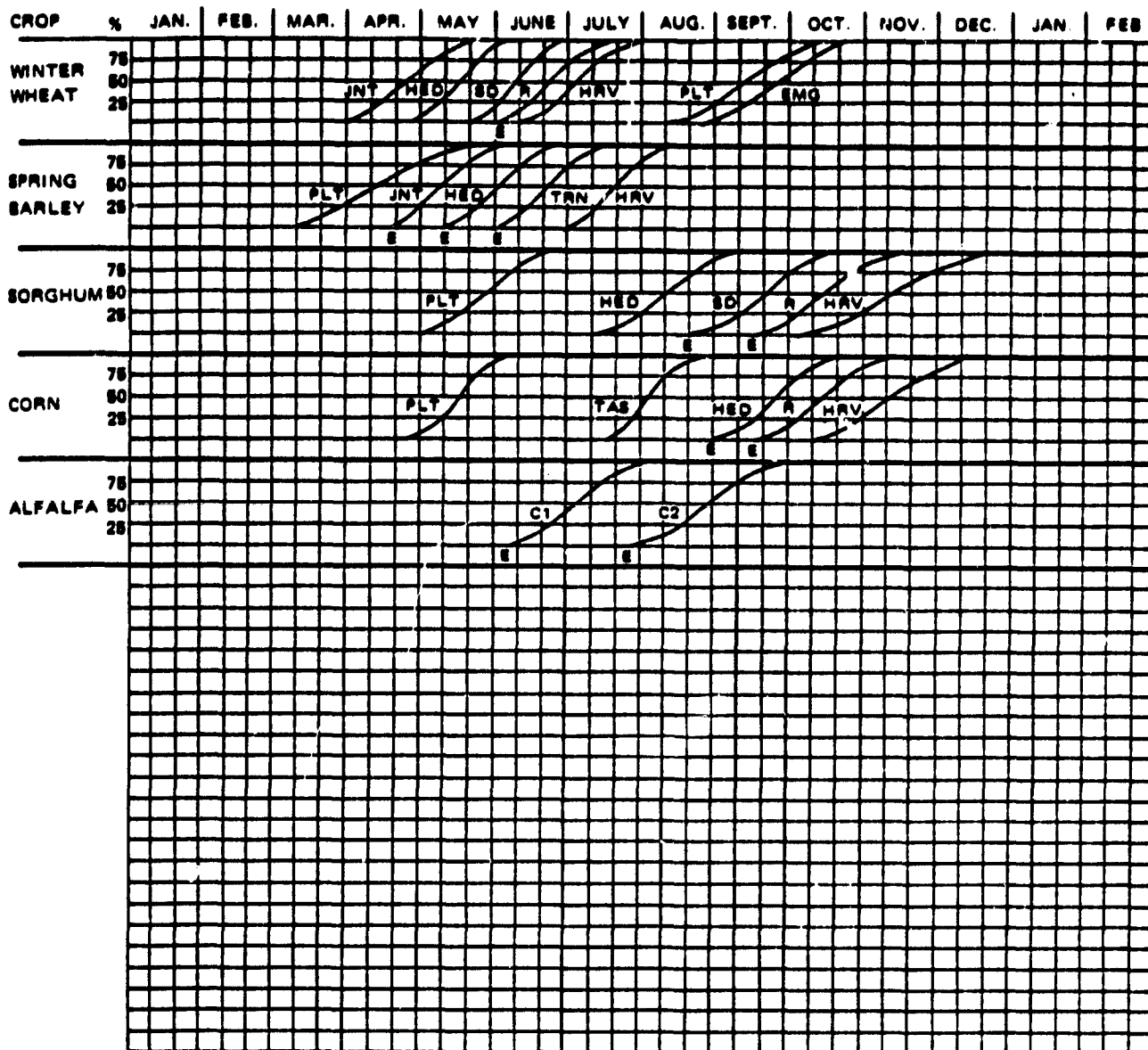


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 C Cut

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COLORADO CRD 90 AVERAGE CROP CALENDARS FROM 1971 TO 1973



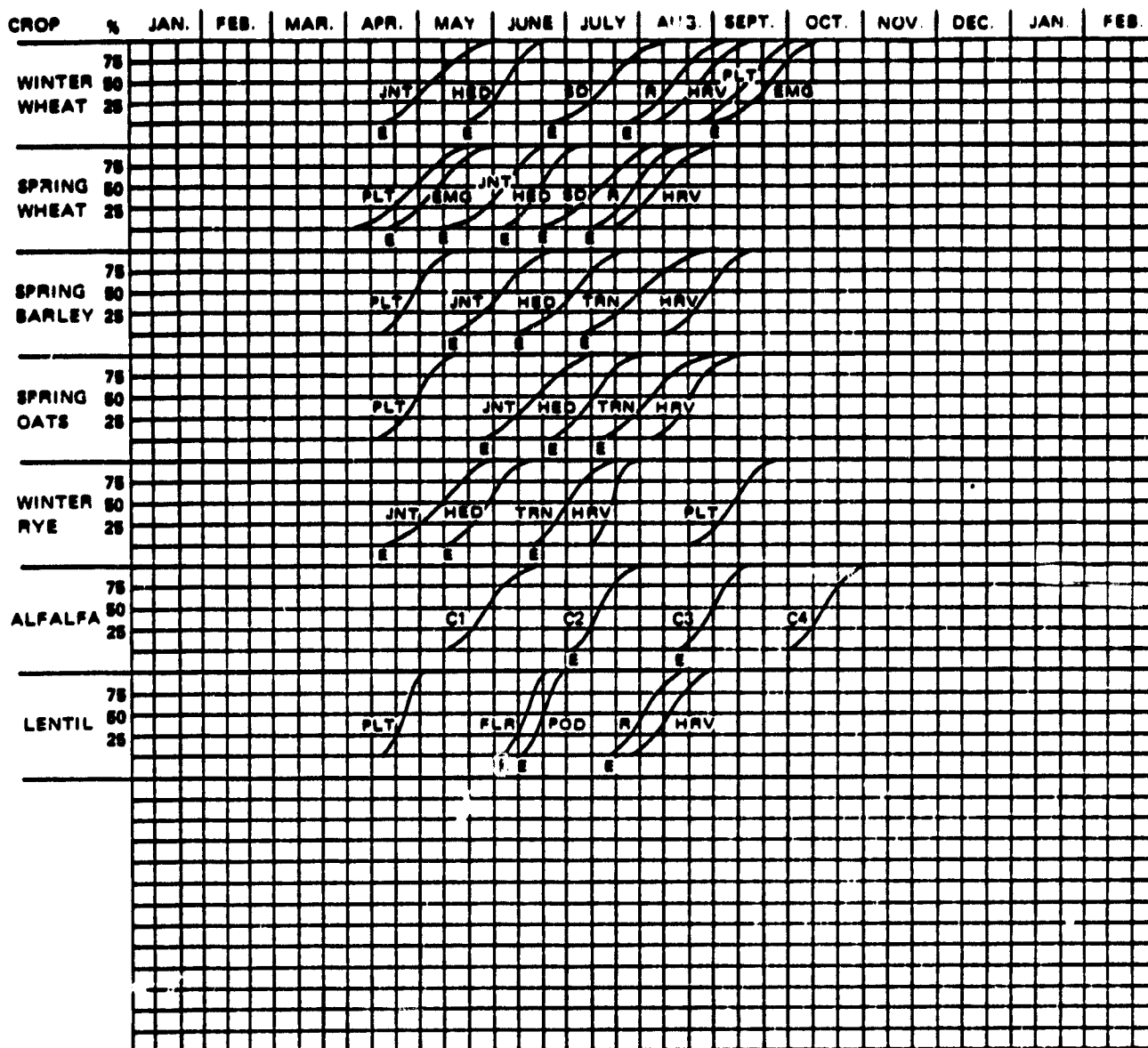
LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 C Cut  
 TAS Tasseling



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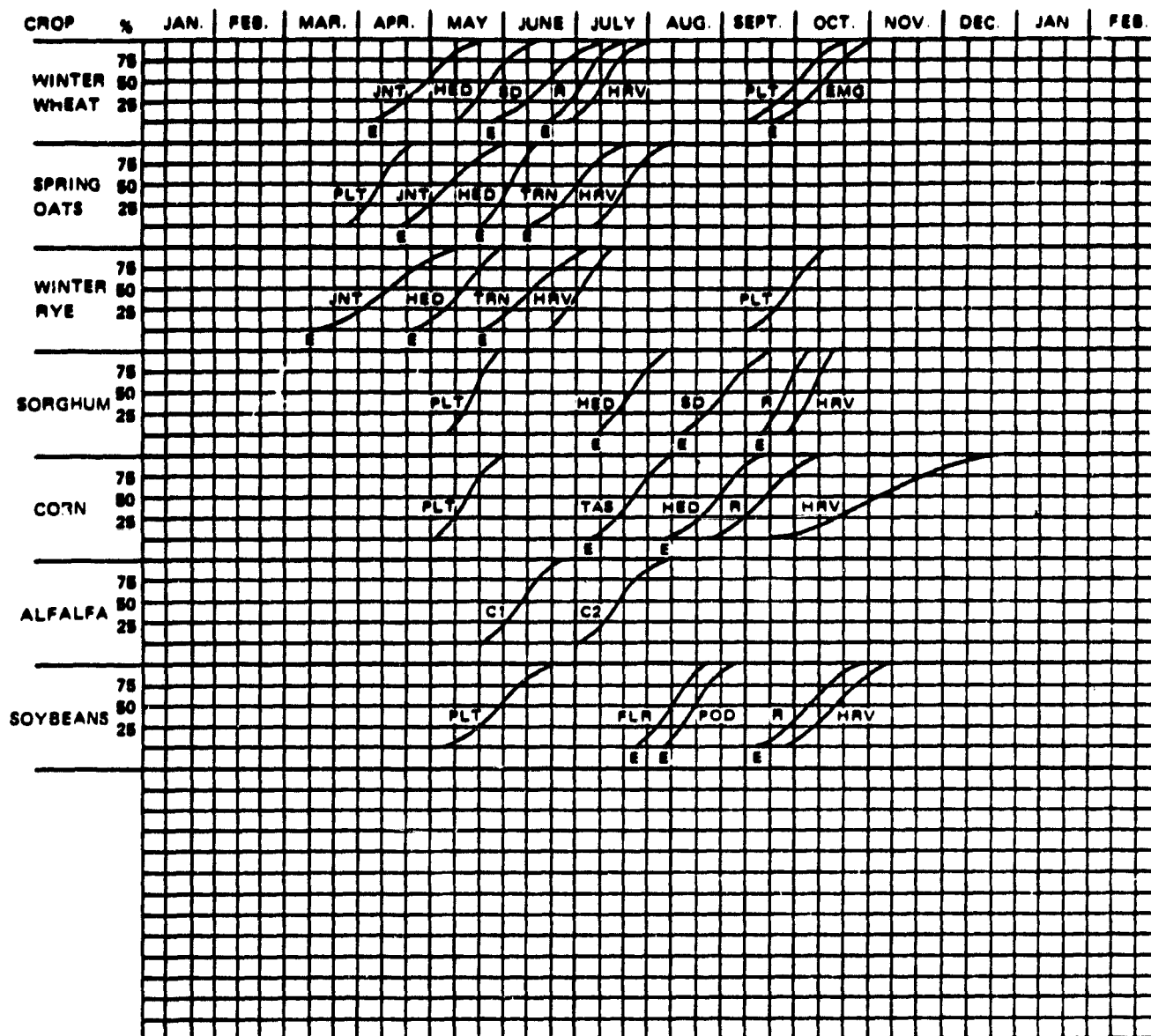


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HARV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 C Cut  
 FLR Flowering

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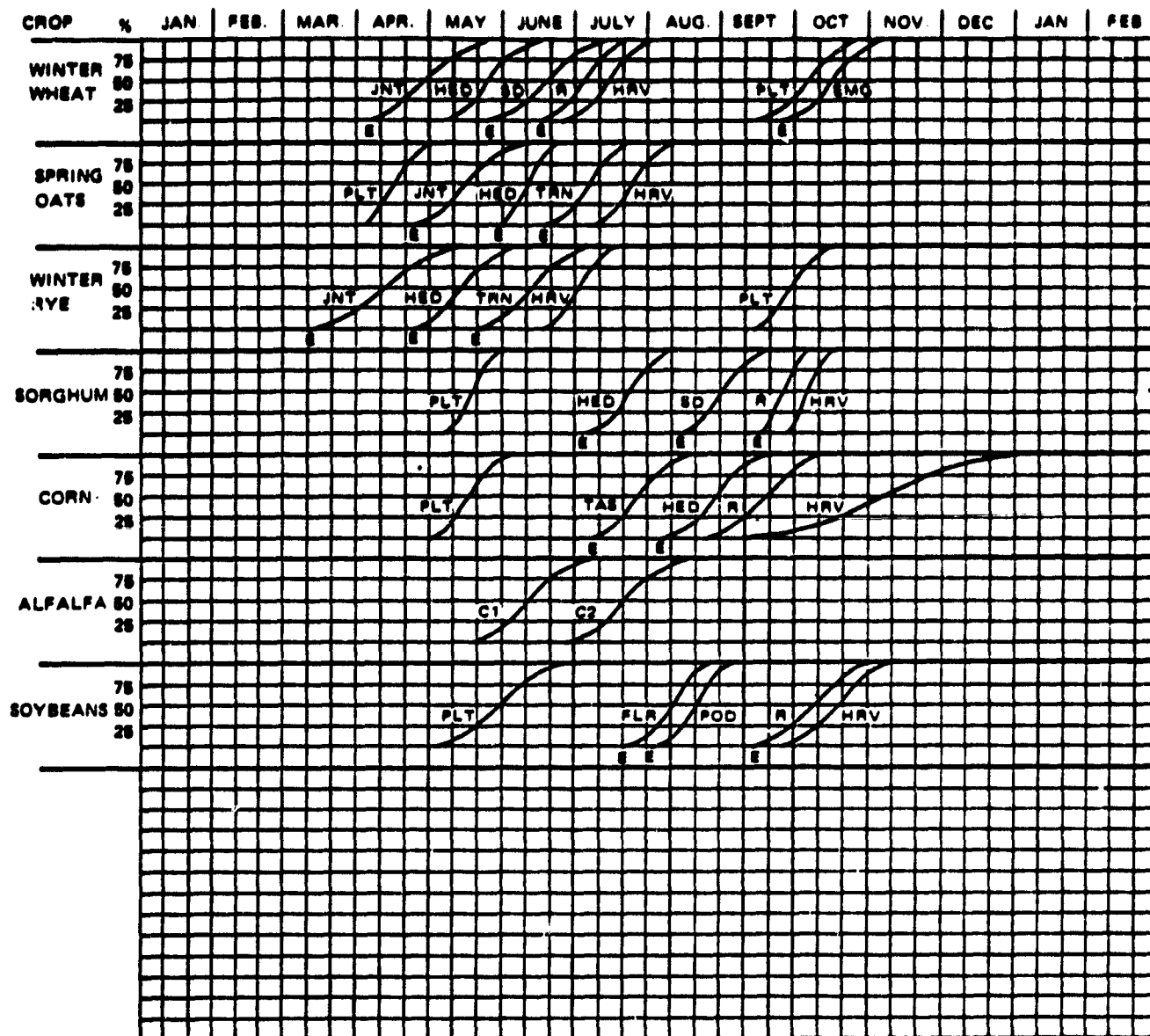


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering

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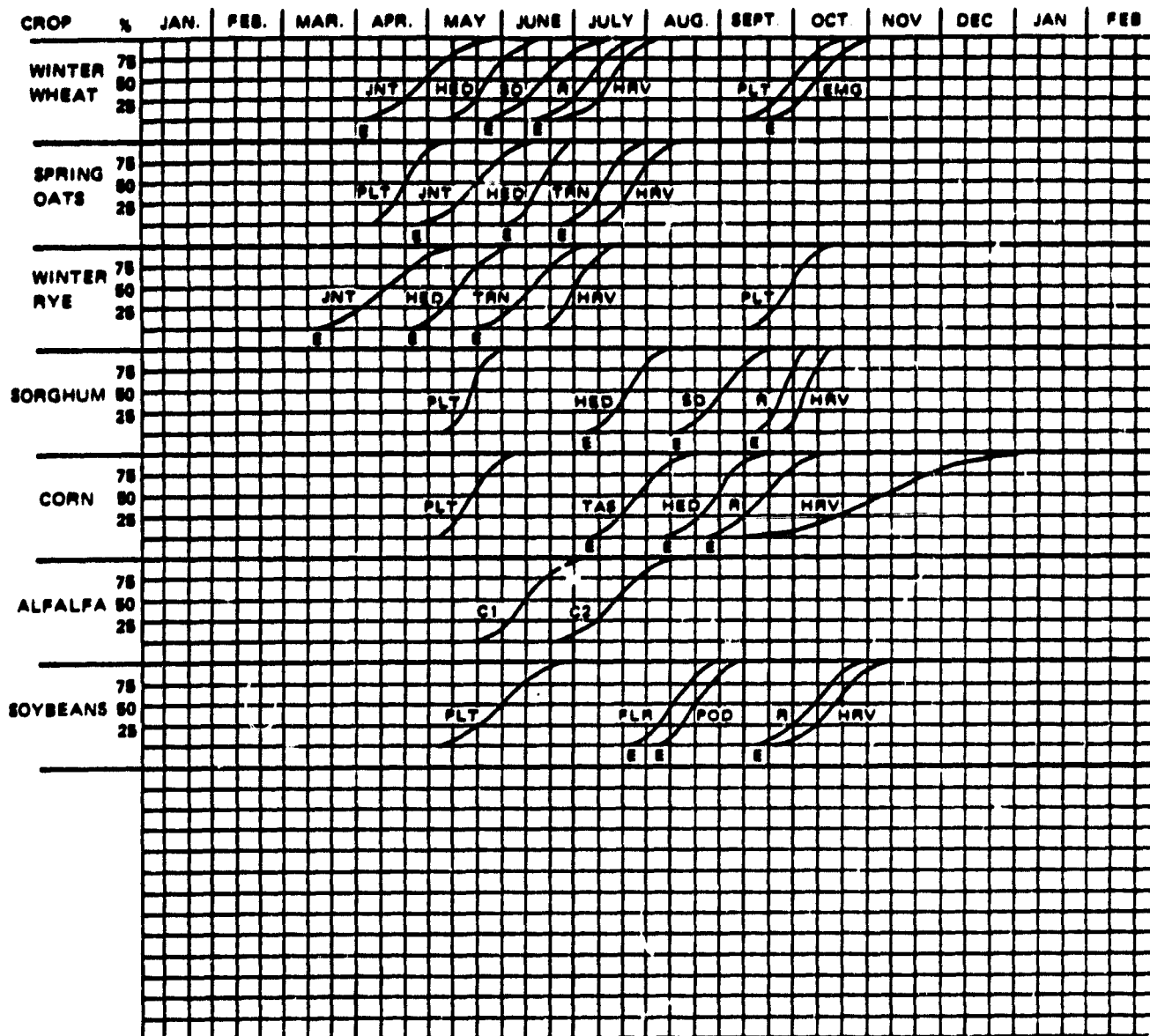


LEGEND

E Under stage name, indicates rough estimate of date  
 EM3 Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 C Cut  
 FLR Flowering

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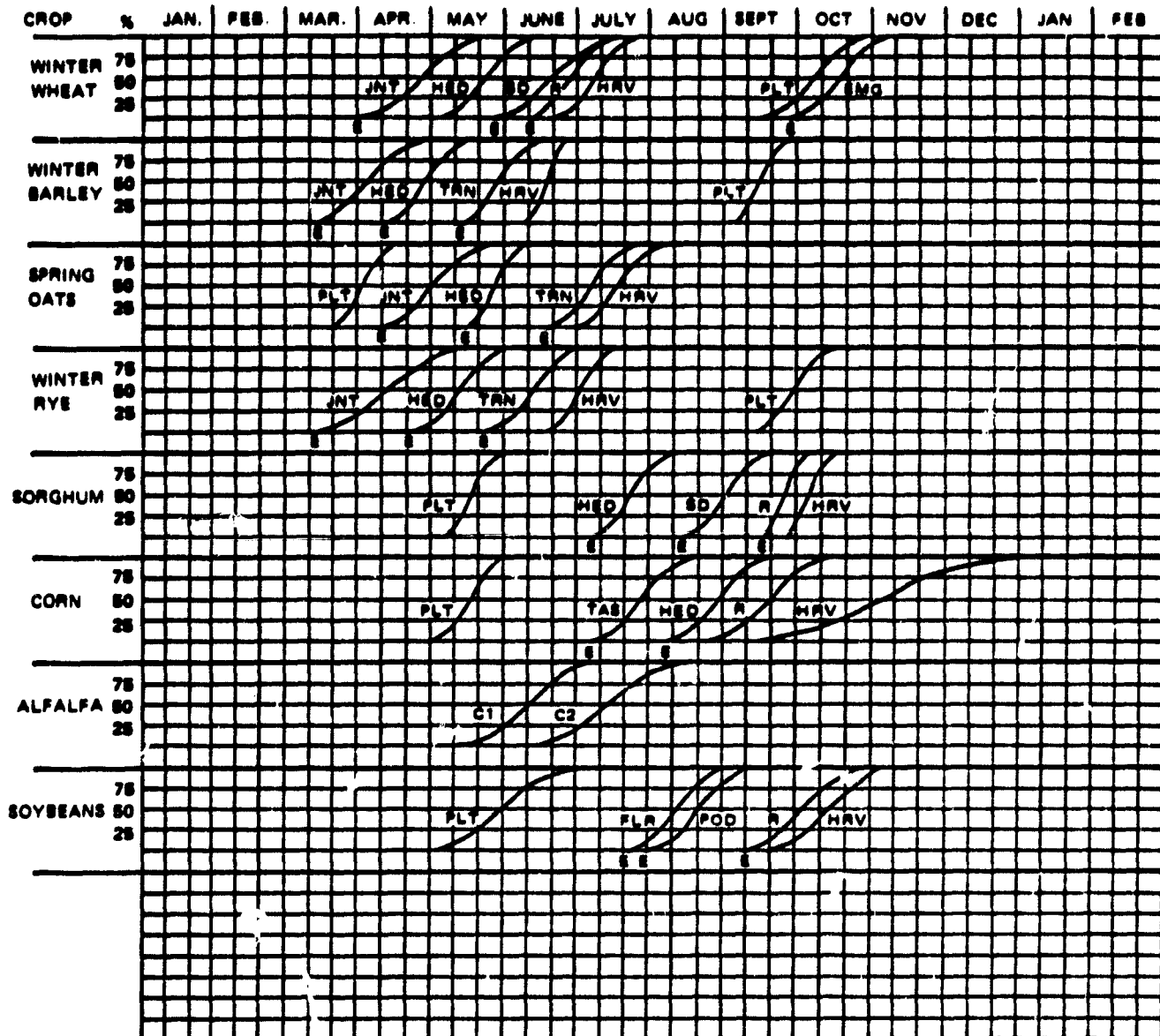


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TAN Turning  
 TAS Tasseling  
 C Cut  
 FLR Flowering

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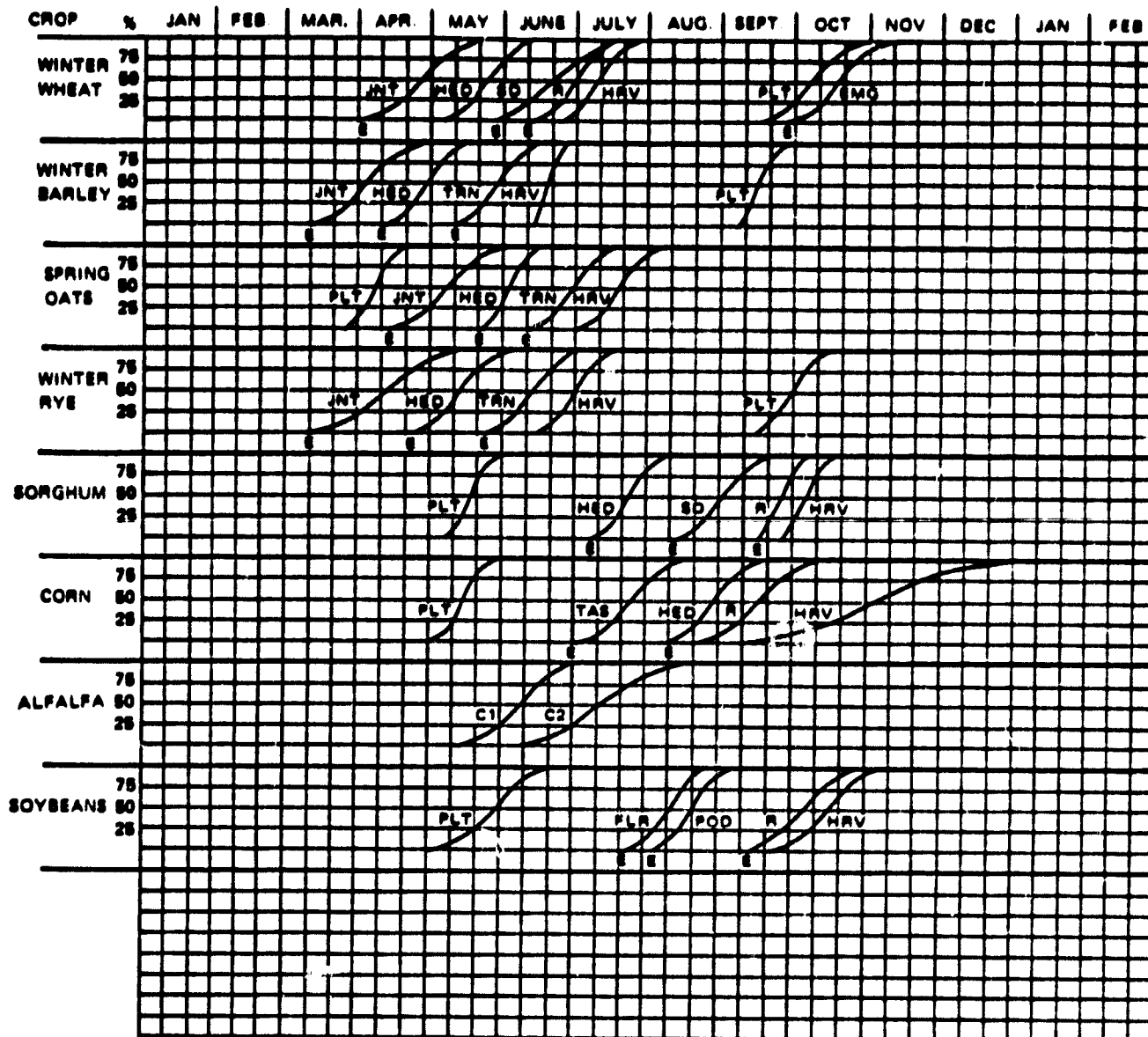


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 C Cut  
 FLR Flowering

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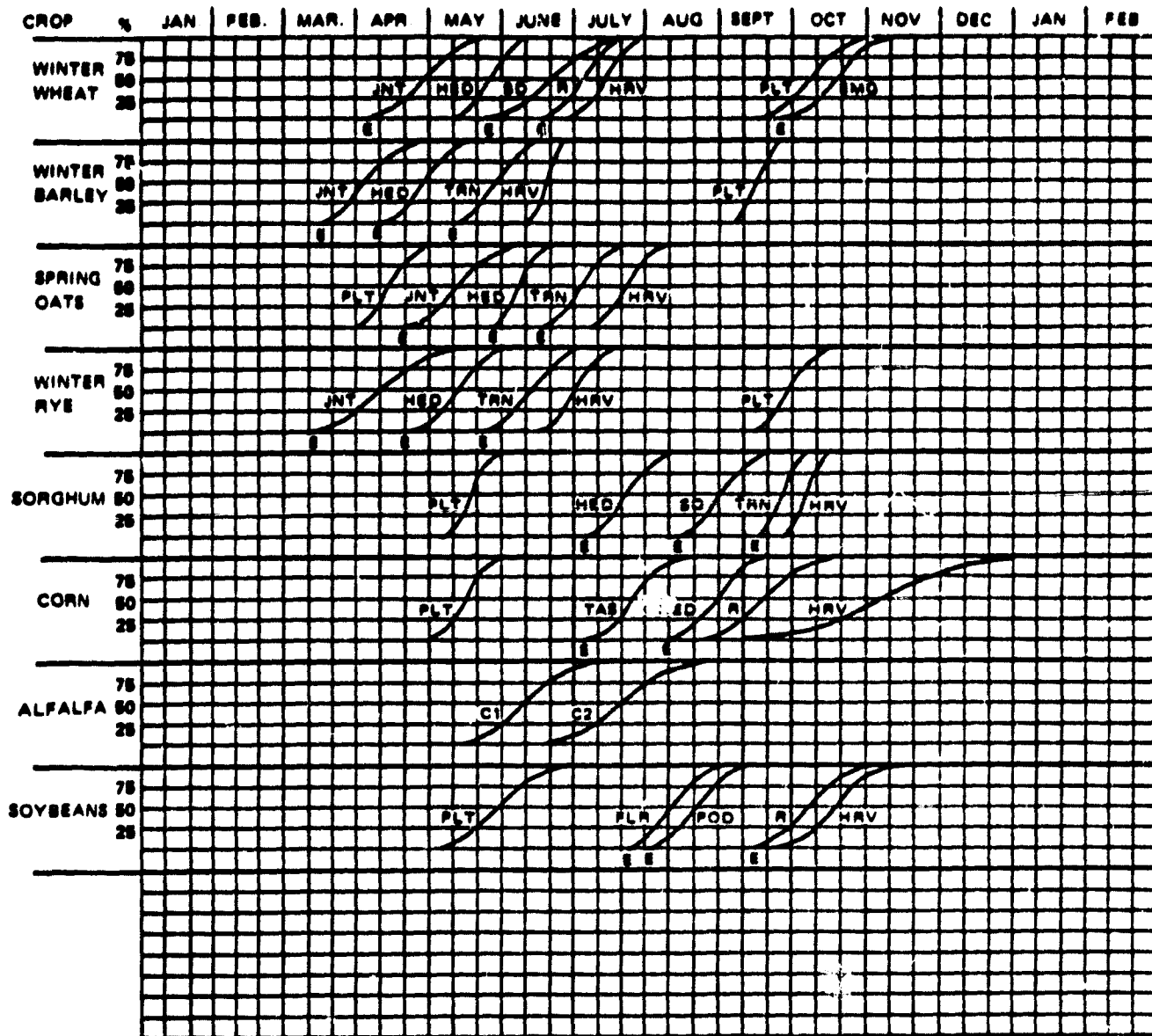


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering

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PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
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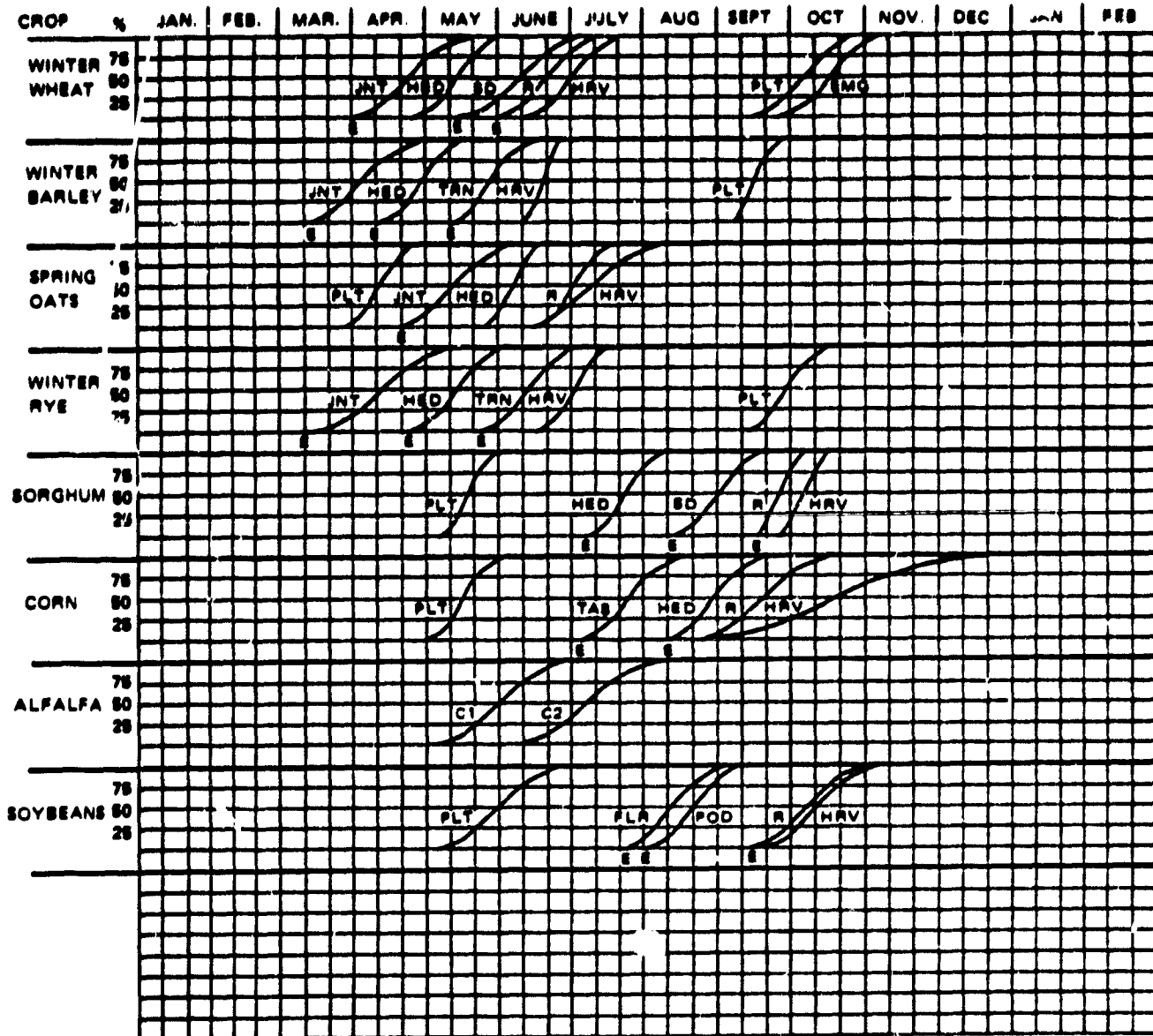


LEGEND

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 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 C Cut  
 FLR Flowering

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CROP CALENDARS PLOTTED 01/06/76  
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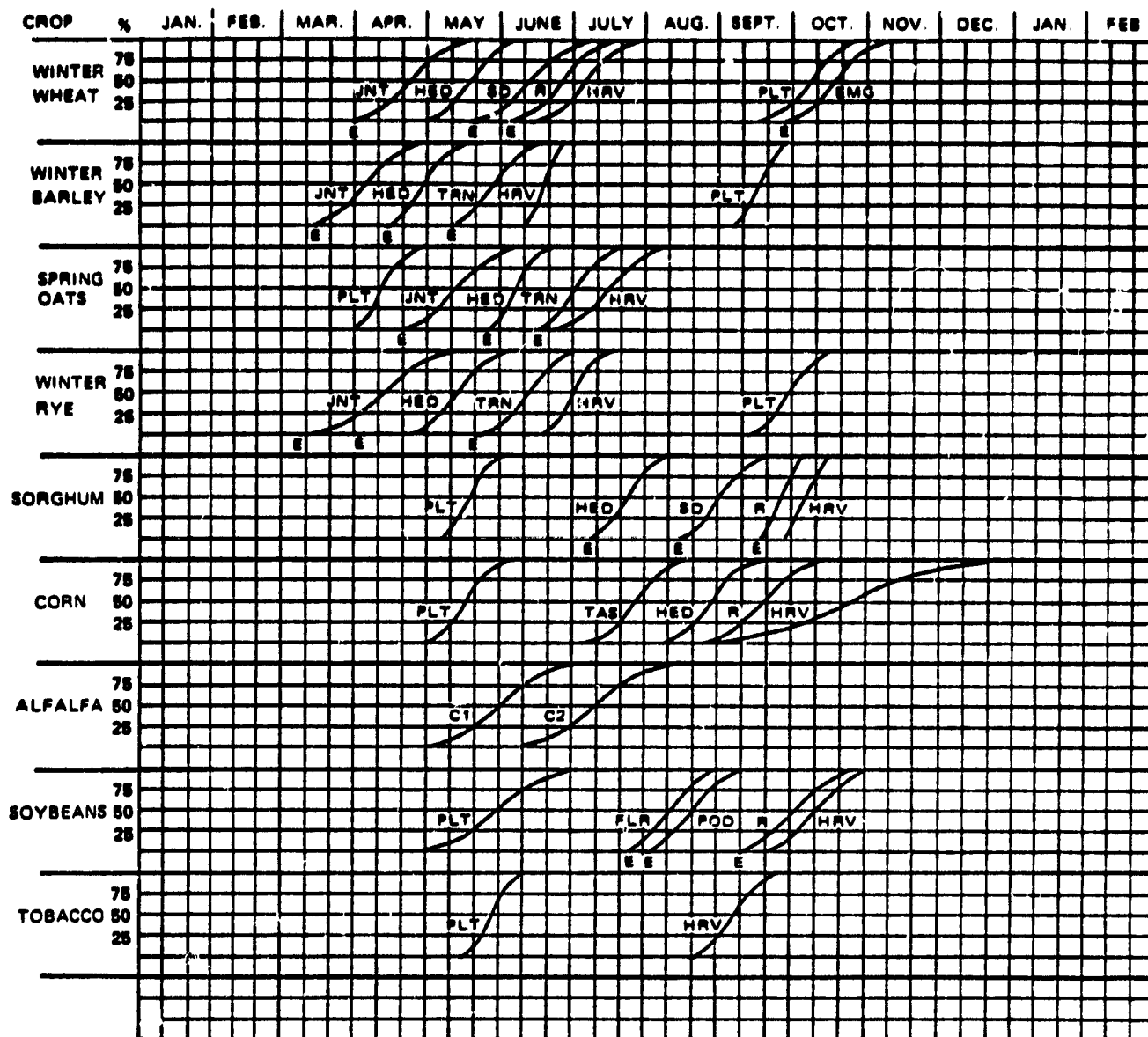
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E Under stage name, indicates rough estimate of date  
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HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering



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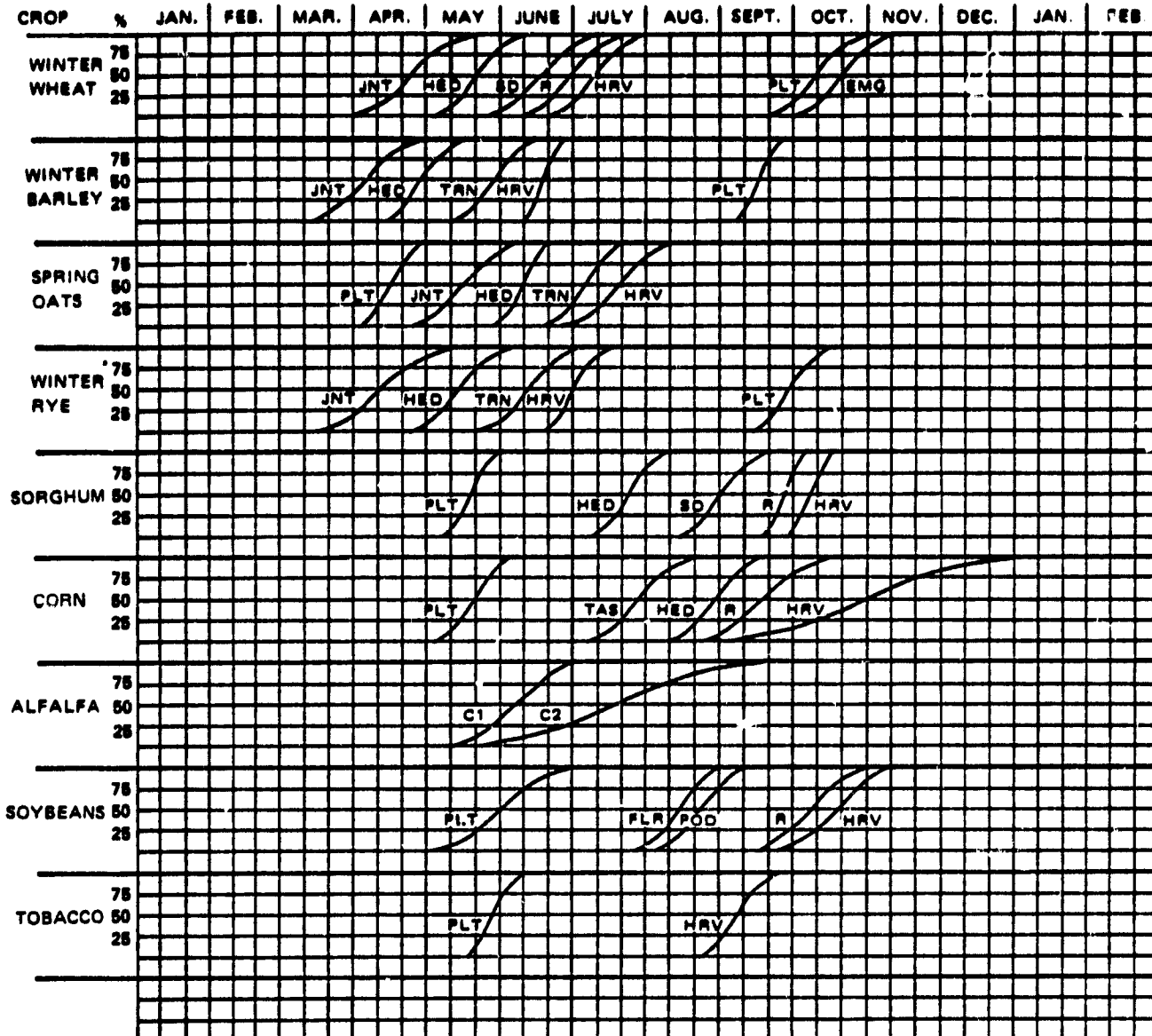


## LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering

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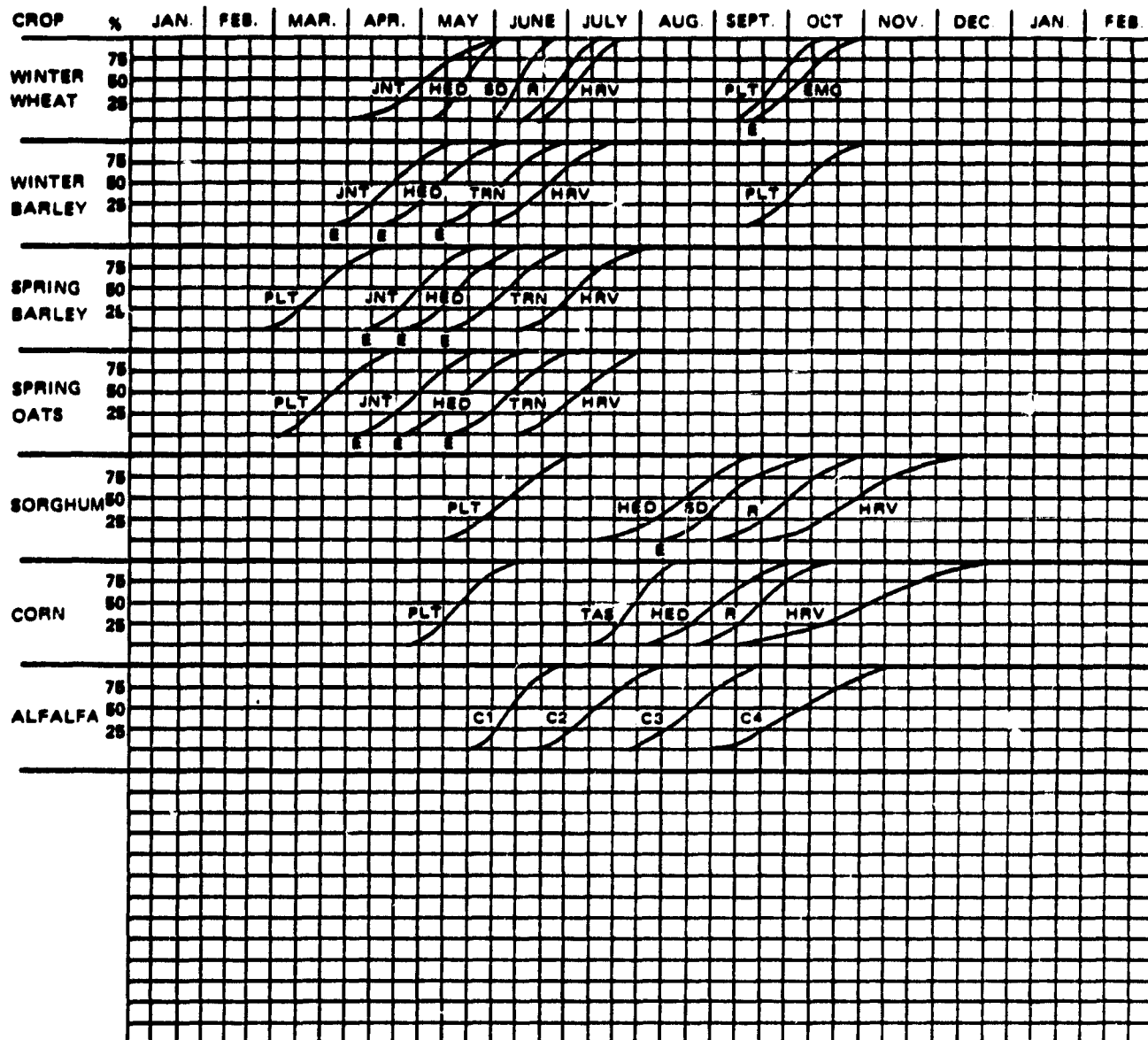


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 C Cut  
 FLR Flowering

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PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
KANSAS CRD 1 AVERAGE CROP CALENDARS FROM 1963 TO 1973

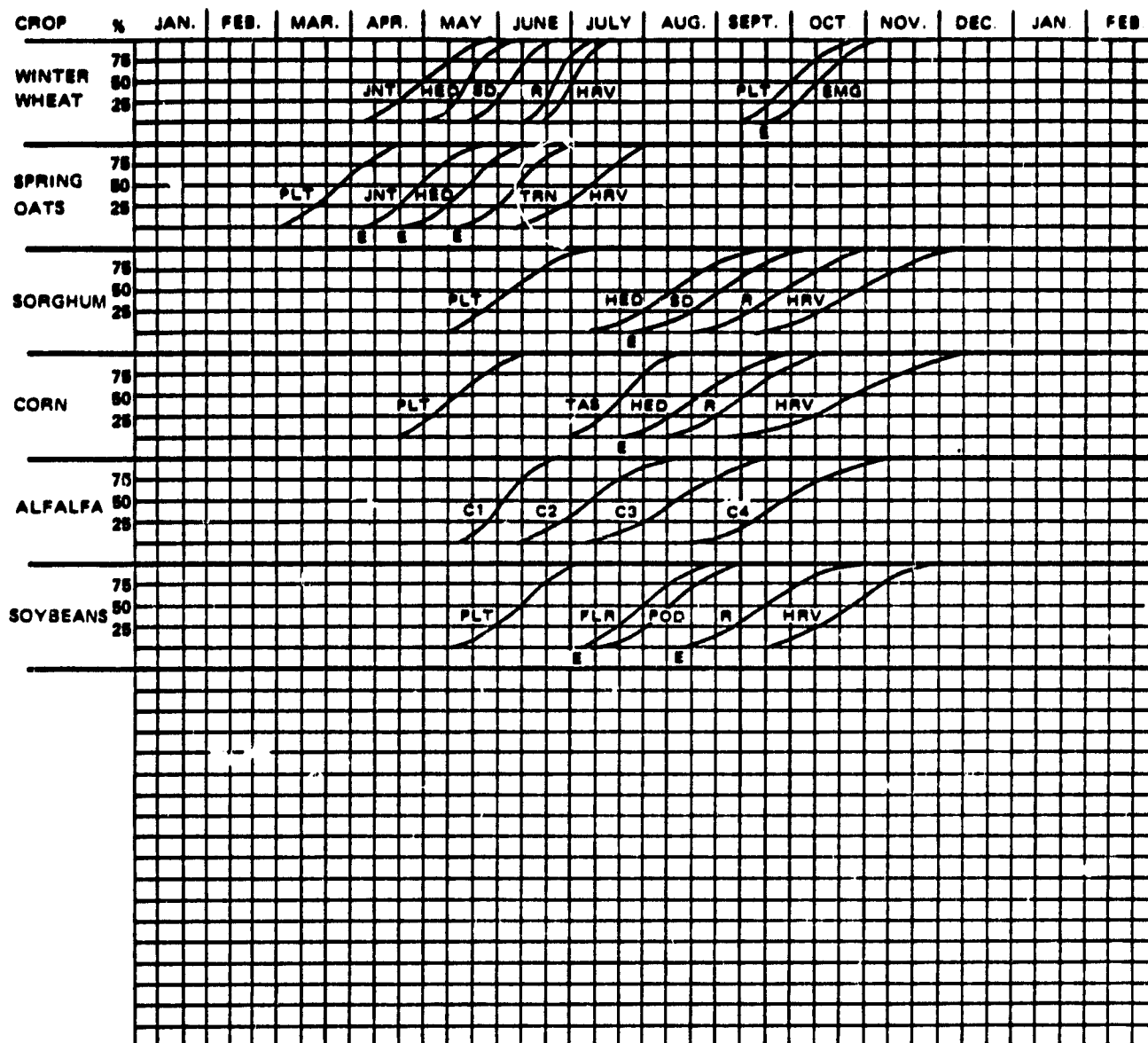


#### LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut

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PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
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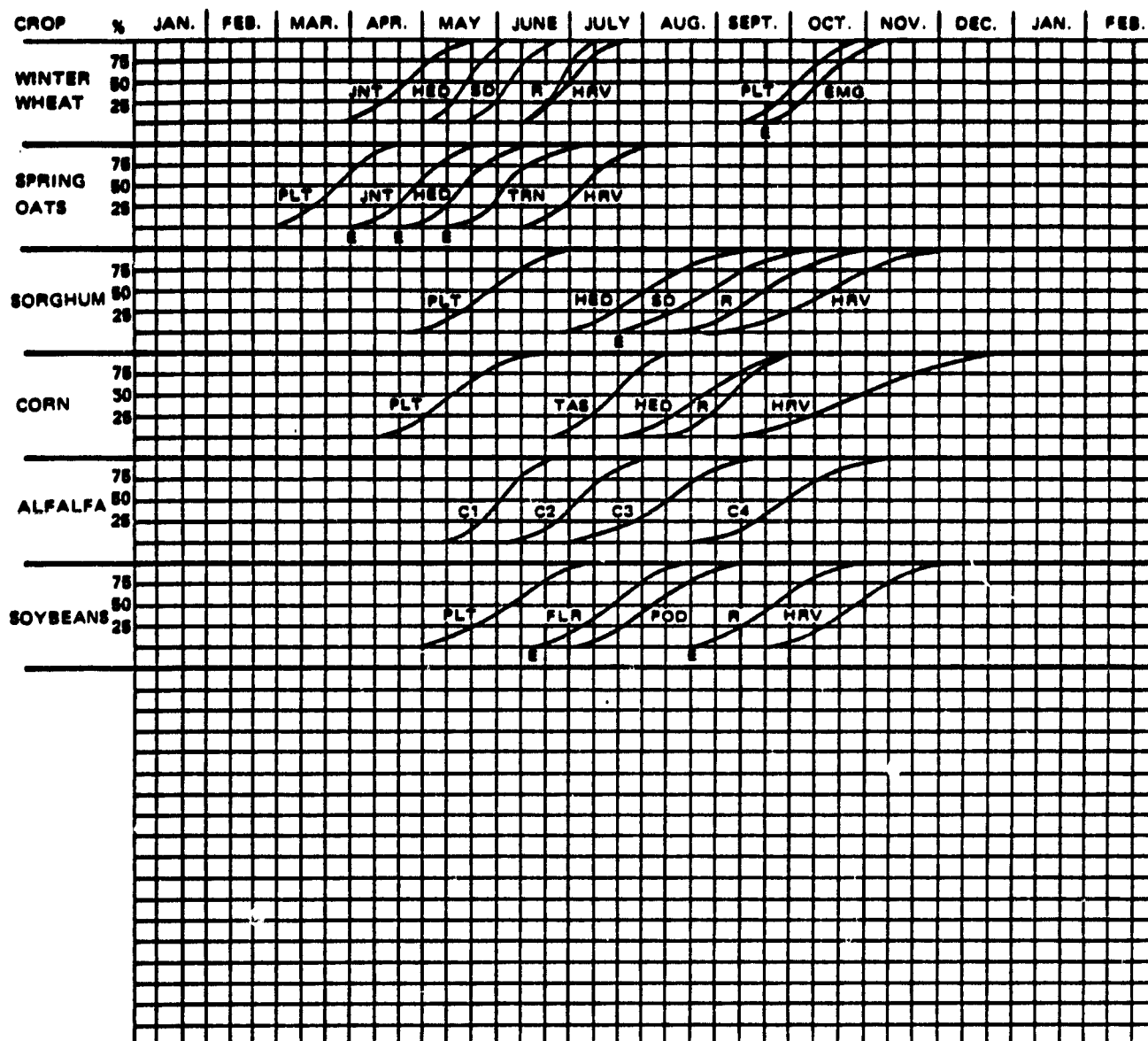


## LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering

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KANSAS CRD 3 AVERAGE CROP CALENDARS FROM 1963 TO 1973

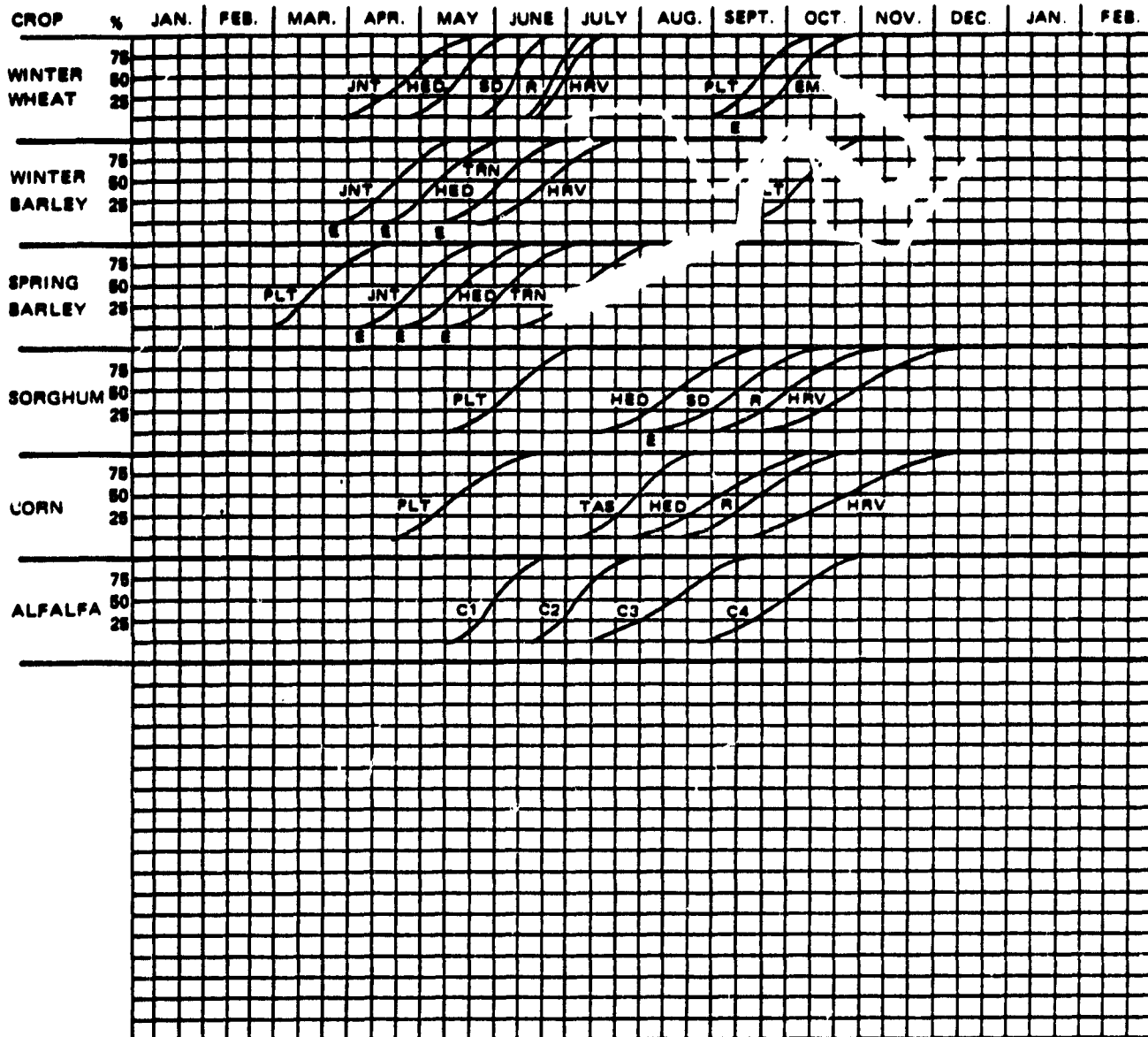


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
KANSAS CRO 4 AVERAGE CROP CALENDARS FROM 1963 TO 1973

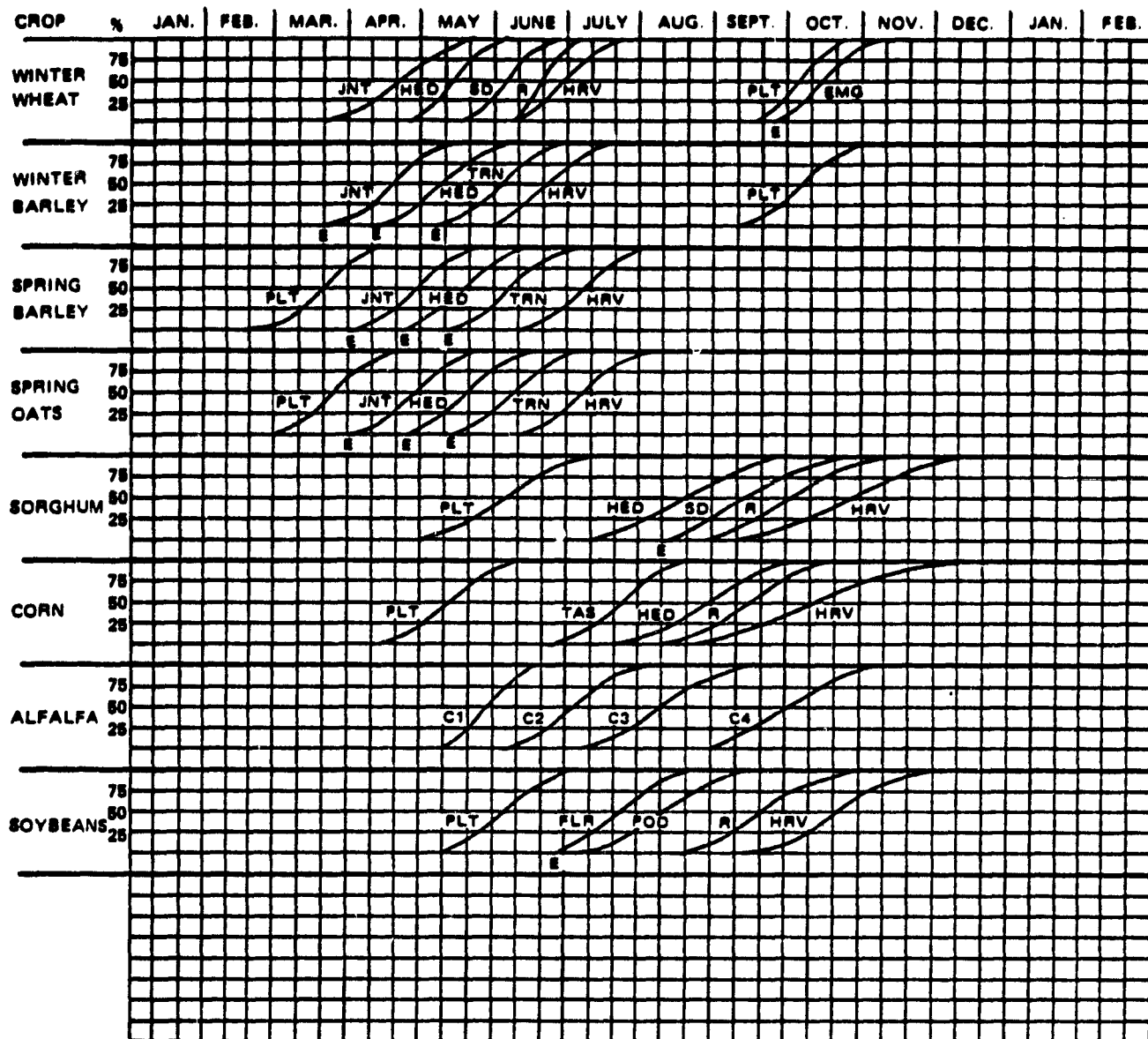


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasselling  
 C Cut

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CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
KANSAS CRD 5 AVERAGE CROP CALENDARS FROM 1963 TO 1973

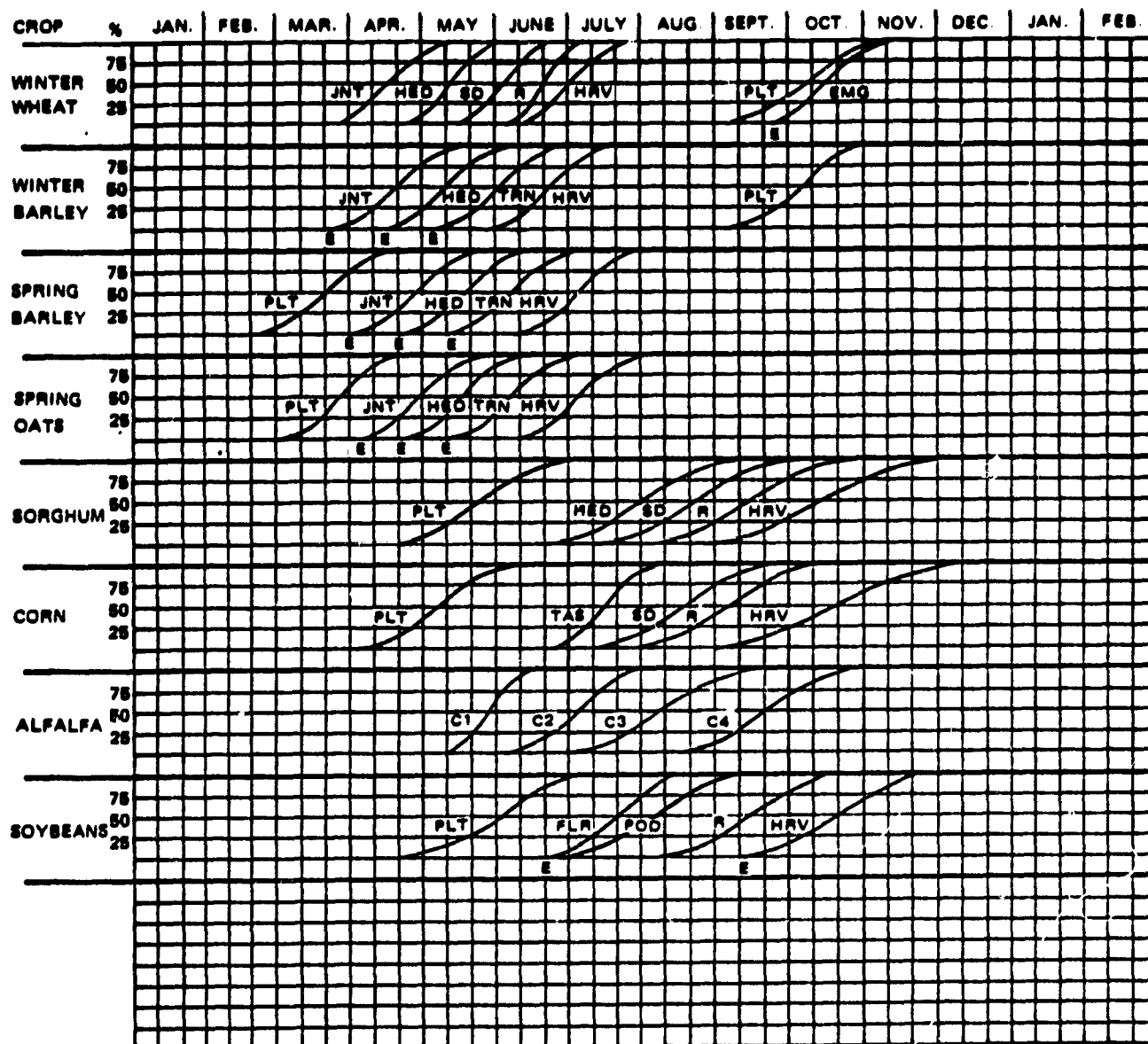


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 C Cut  
 FLR Flowering

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CROP CALENDARS PLOTTED 01/06/8  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
KANSAS CRD 6 AVERAGE CROP CALENDARS FROM 1963 TO 1973



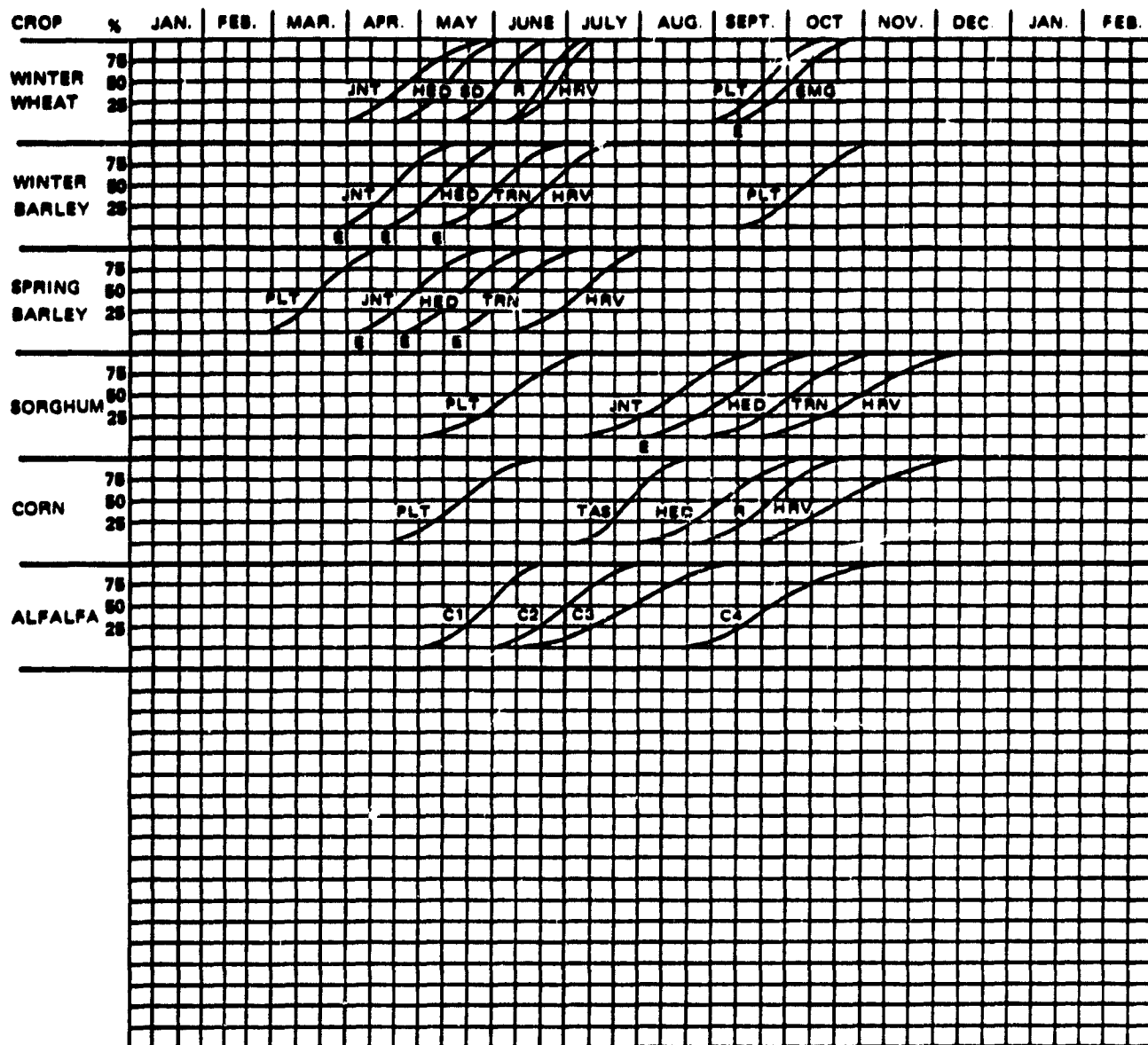
LEGEND

E	Under stage name, indicates rough estimate of date
EMG	Emergence
HED	Heading
HRV	Harvest
JNT	Jointing
PLT	Planting
R	Ripe
SD	Soft dough
TRN	Turning
FLR	Flowering
C	Cut
TAS	Tasseling



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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
KANSAS CRD 7 AVERAGE CROP CALENDARS FROM 1963 TO 1973

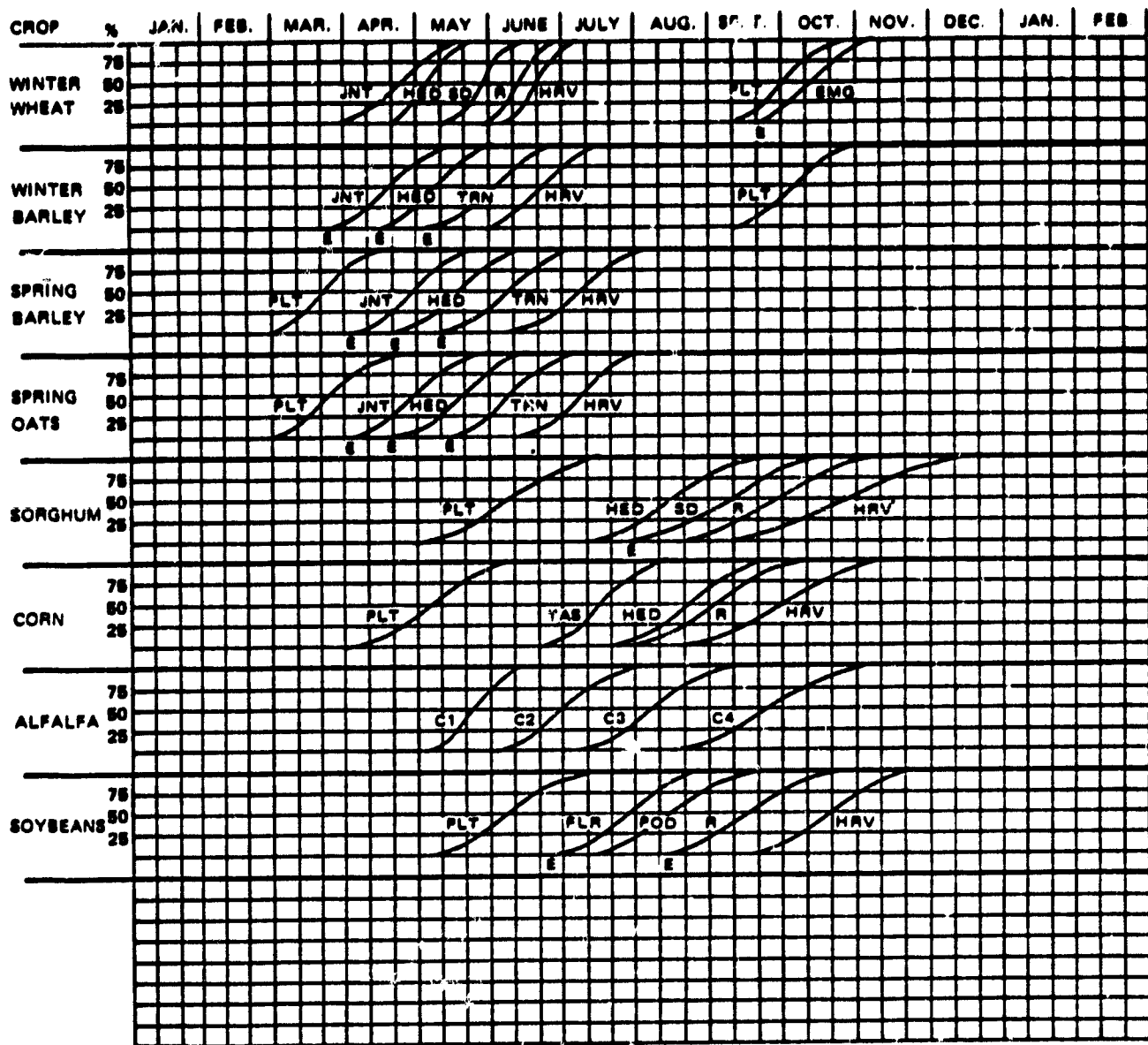


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/08/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
KANSAS CRO 8 AVERAGE CROP CALENDARS FROM 1963 TO 1973

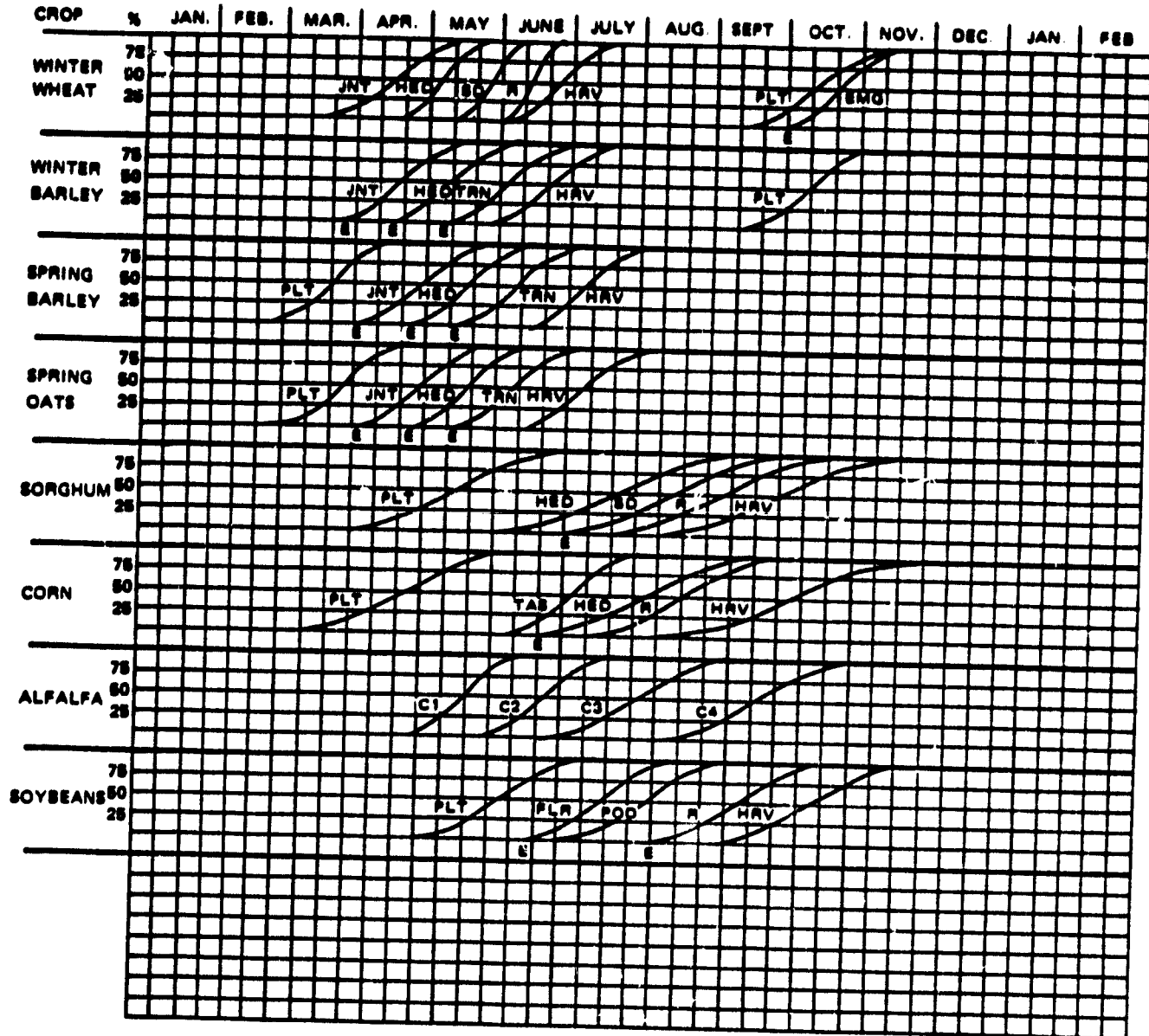


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TAS Tasseling  
TRN Turning  
C Cut  
FLR Flowering

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
KANSAS CRD 9 AVERAGE CROP CALENDARS FROM 1963 TO 1973

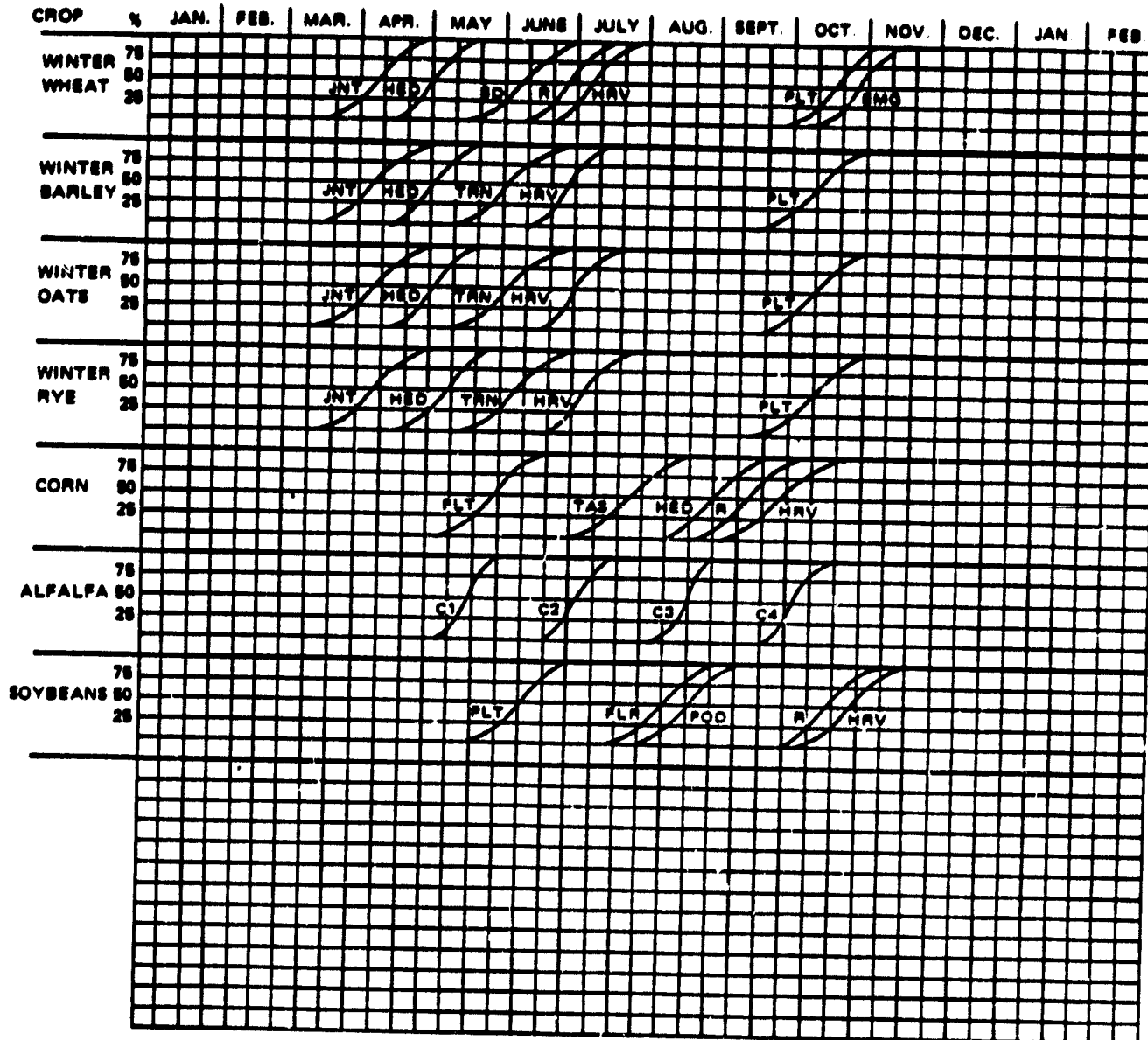


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HARV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flower

# ORIGINAL VALUE OF POOR QUALITY

CROP CALENDARS PLOTTED 01/08/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
MARYLAND CROPS ESTIMATED AVERAGE CROP CALENDARS FROM USDA BULLETIN 283



LEGEND

E Under stage name, indicates rough estimate of date

EMG Emergence

HED Heading

HRV Harvest

JNT Jointing

PLT Planting

R Ripe

SD Soft dough

TRN Turning

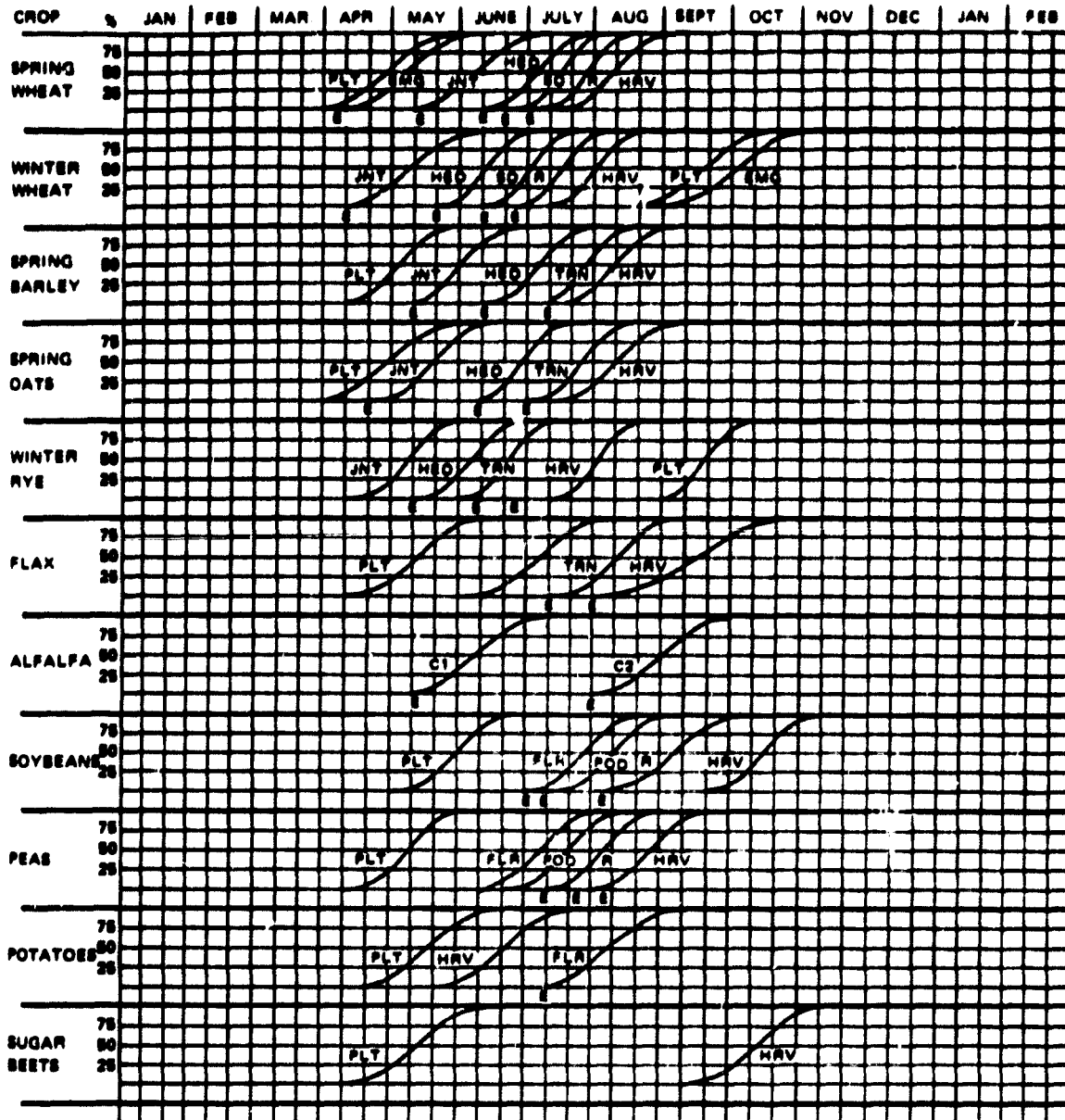
TAS Tasseling

C Cut

FLR Flowering

ORIGINAL PAGE IS  
OF POOR QUALITY

CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
MINNESOTA AND 10 ESTIMATED AVERAGE CROP CALENDARS FROM BULLETIN 283

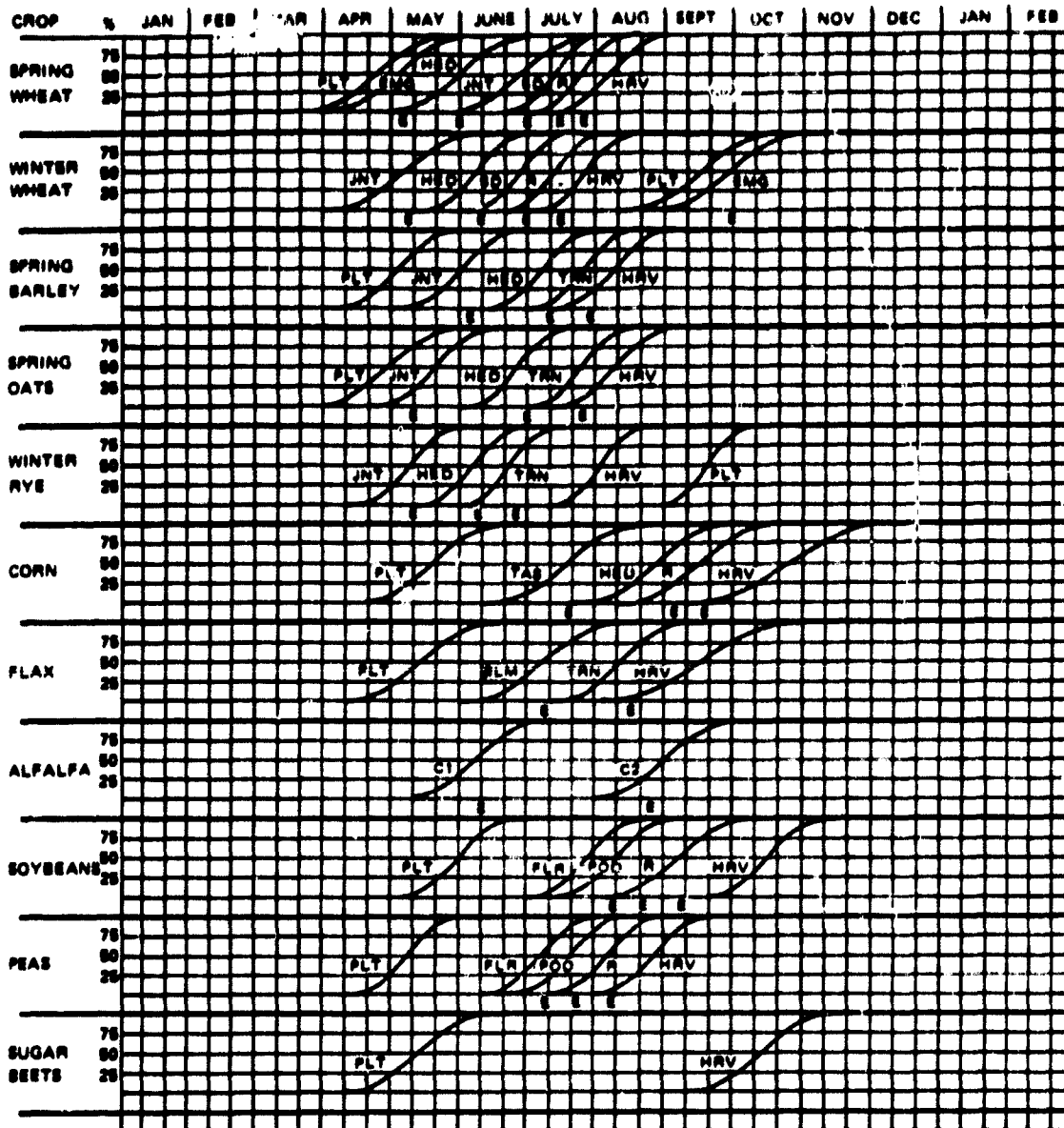


#### LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 C Cut  
 FLR Flowering

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
MINNESOTA CRD 40 ESTIMATED AVERAGE CROP CALENDARS FROM BULLETIN 283

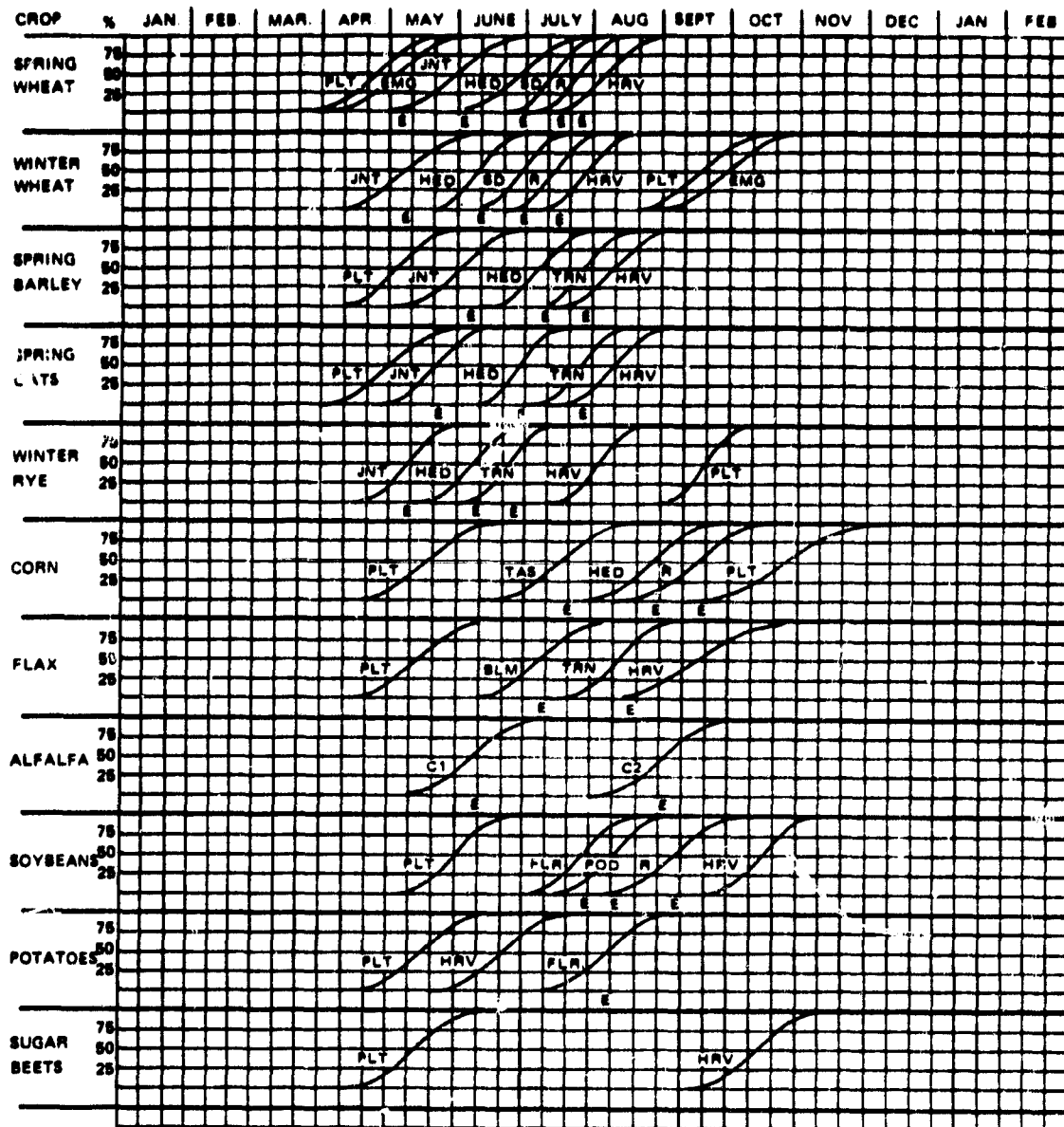


#### LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
FLR Flowering  
TAS Tasseling  
BLM Blooming  
C Cut

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CROP CALENDARS PLOTTED 01/06/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
MINNESOTA CRD 50 ESTIMATED AVERAGE CROP CALENDARS FROM BULLETIN 283

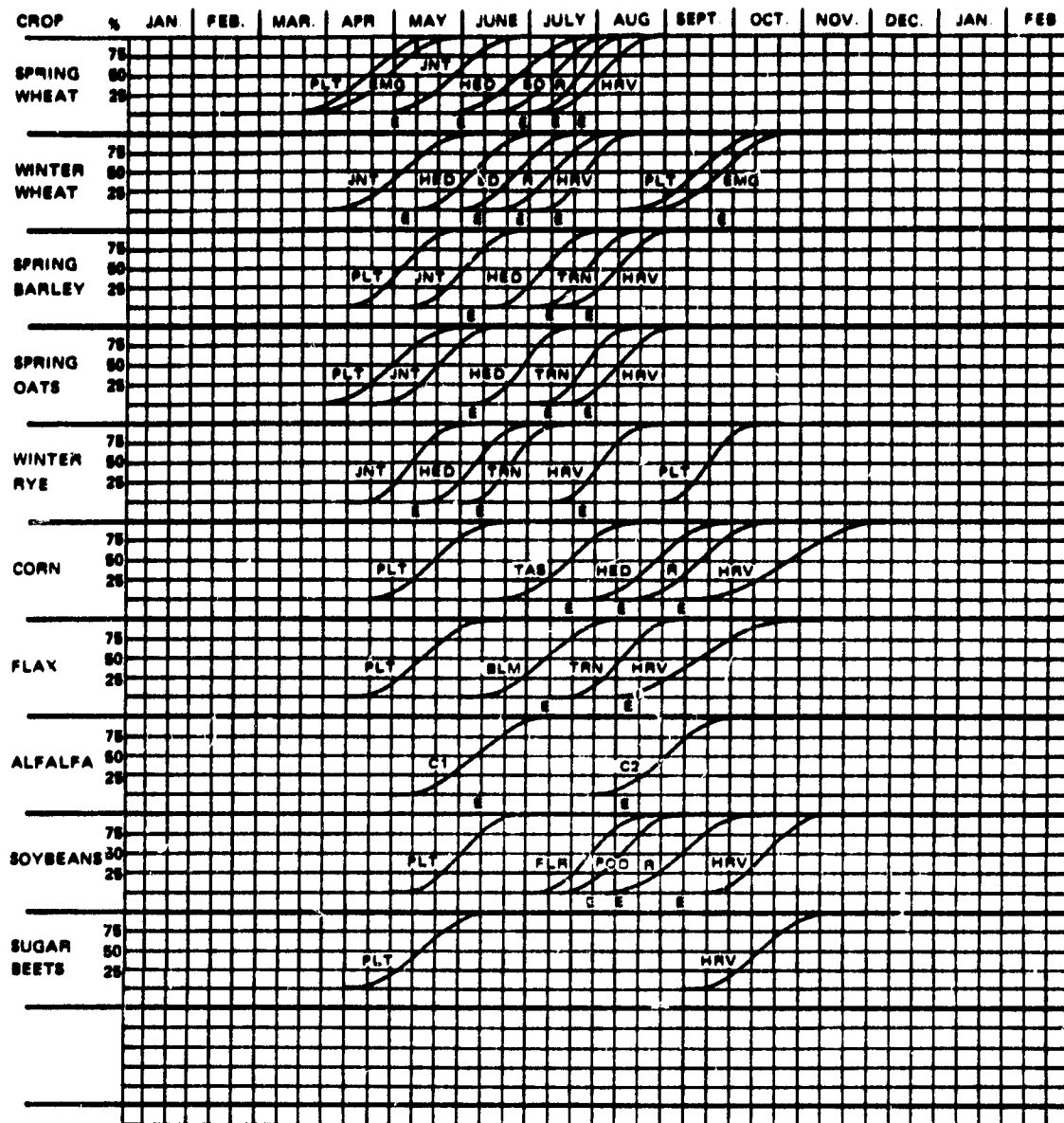


#### LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
BLM Blooming  
C Cut  
FLR Flowering

# ORIGINAL PAGE IS OF POOR QUALITY

CROP CALENDARS PLOTTED 01/08/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
MINNESOTA CRD 70 ESTIMATED AVERAGE CROP CALENDARS FROM BULLETIN 283



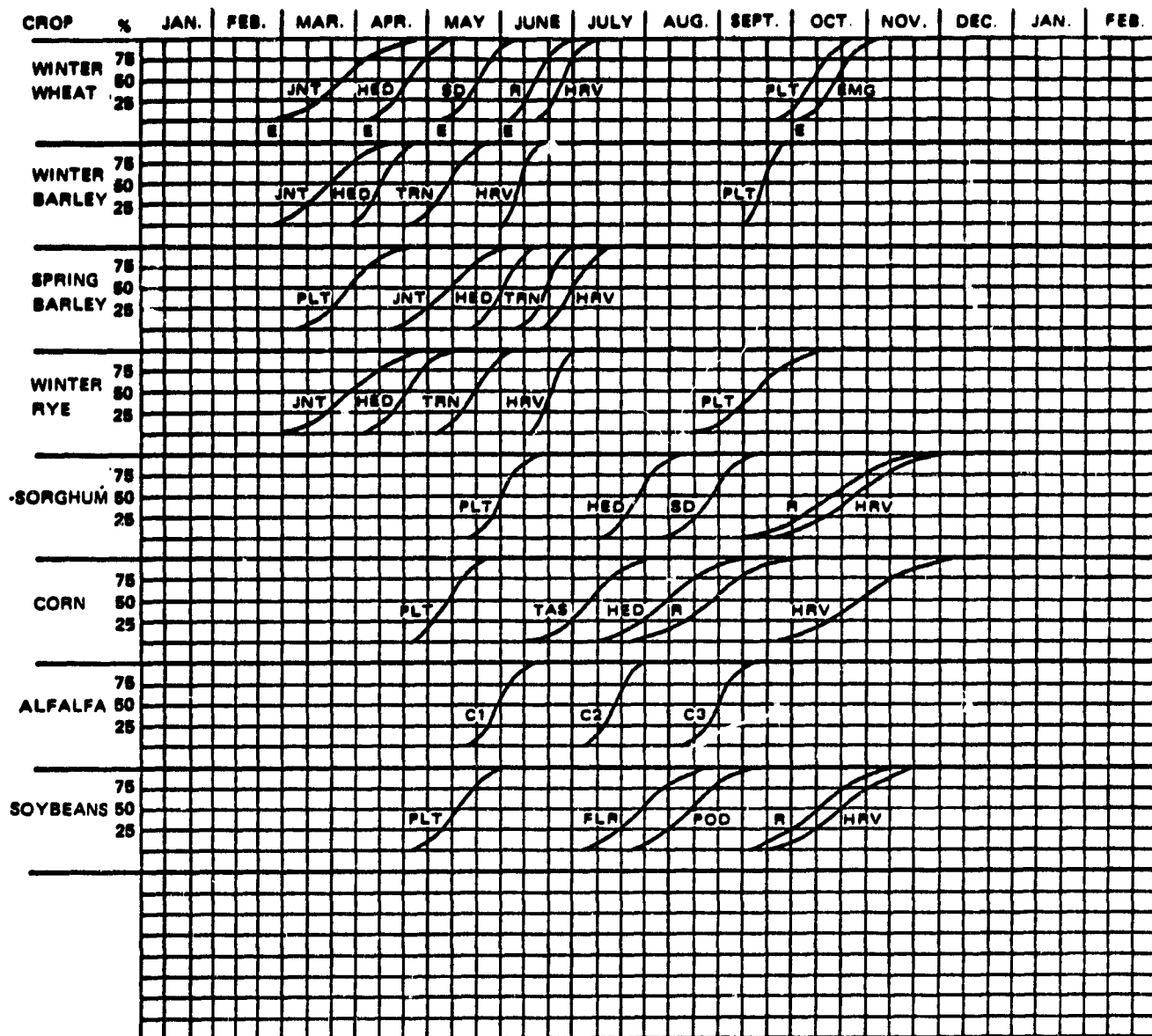
## LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
BLM Blooming  
C Cut  
FLR Flowering



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CROP CALENDARS PLOTTED 01/06/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
MISSOURI CROPS ESTIMATED AVERAGE CROP CALENDARS FROM USDA BULLETIN 283

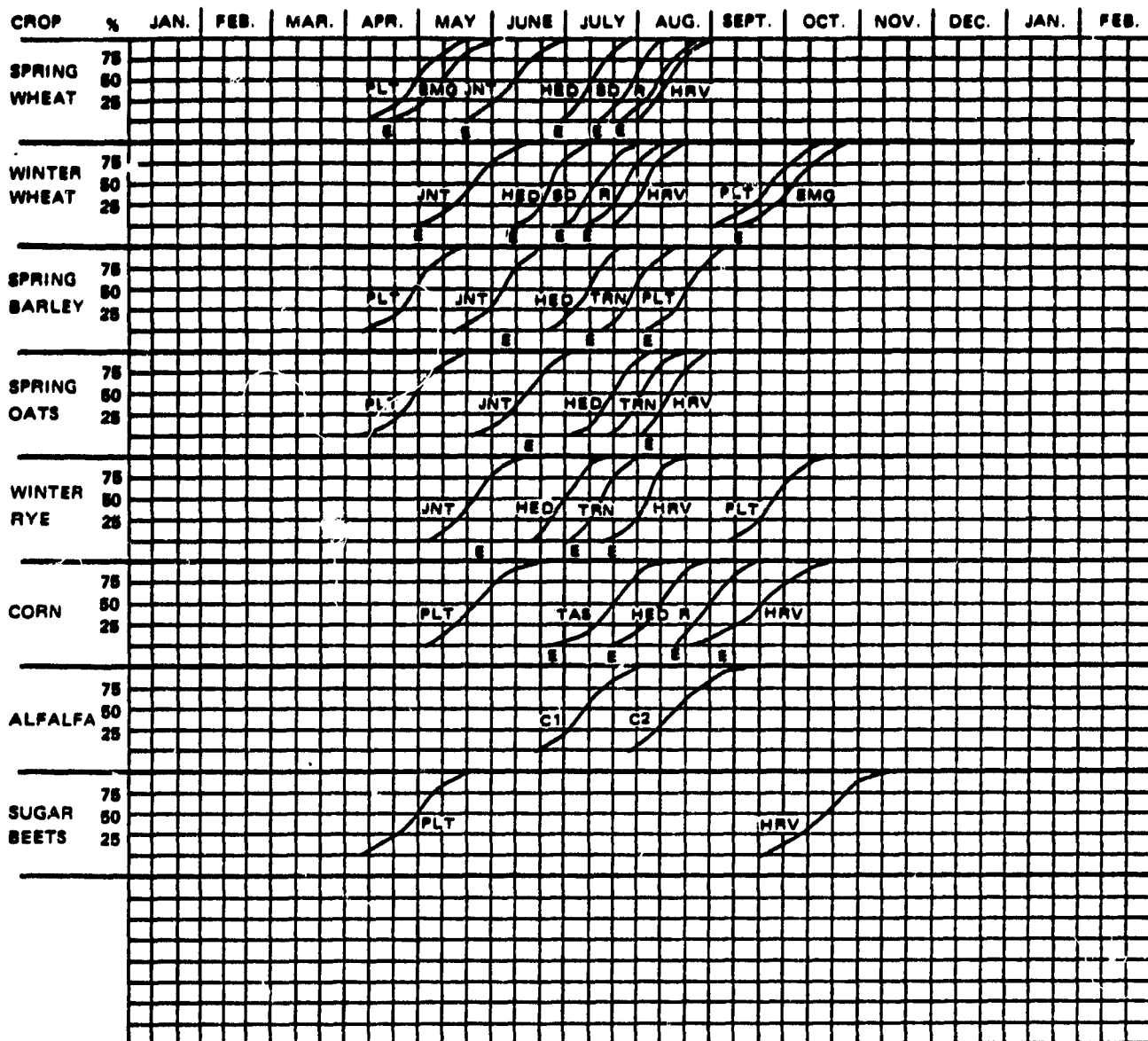


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering

# ORIGINAL PAGE 10 OF POOR QUALITY

CROP CALENDARS PLOTTED 01/08/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
MONTANA CROD 10 RECENT AVERAGE CROP CALENDARS

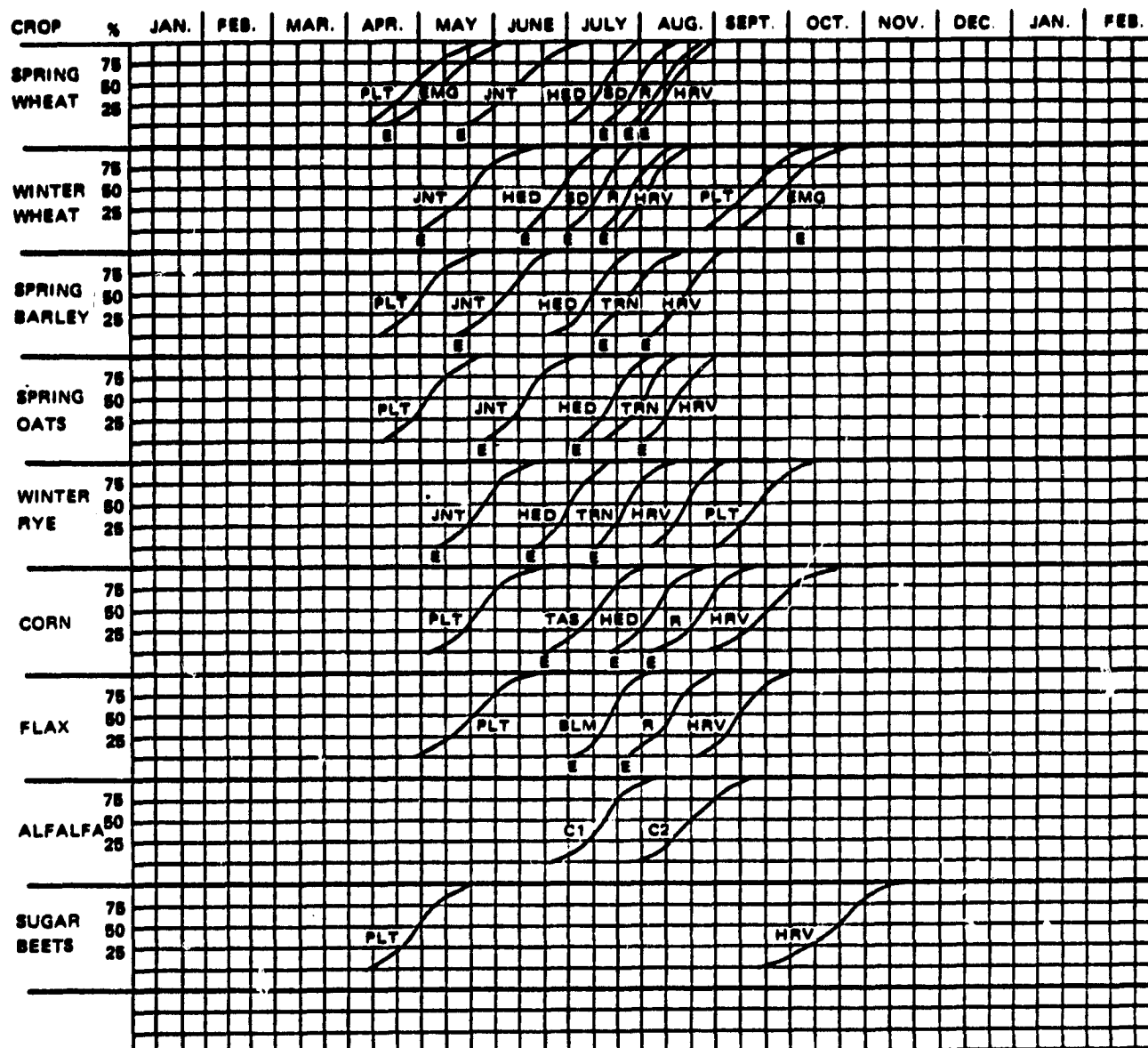


## LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasselling  
 C Cut

# ORIGINAL PAGE IS OF POOR QUALITY

CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
MONTANA CRO 20 RECENT AVERAGE CROP CALENDARS

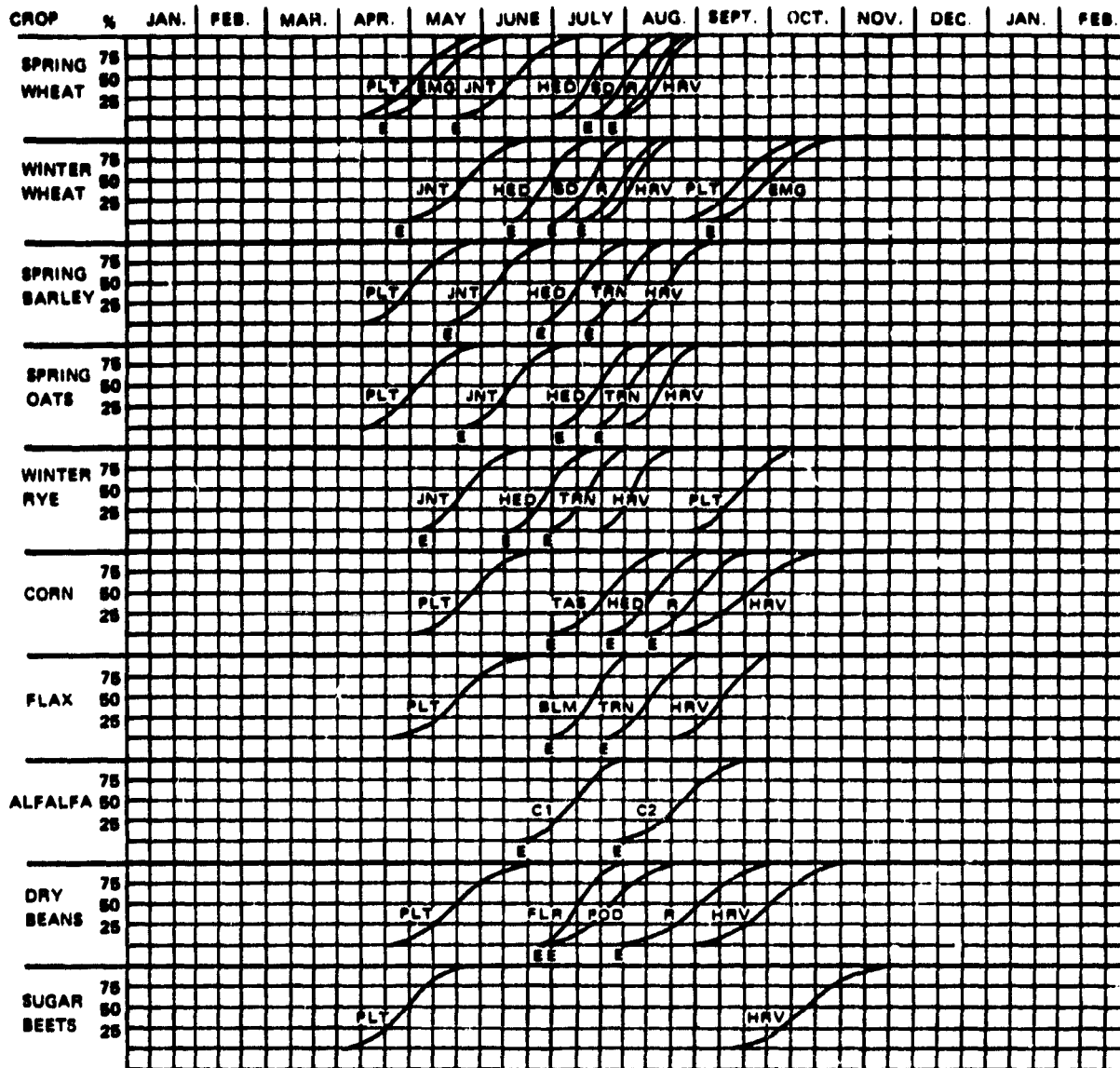


## LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
BLM Blooming  
C Cut

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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
MONTANA CRD 30 RECENT AVERAGE CROP CALENDARS

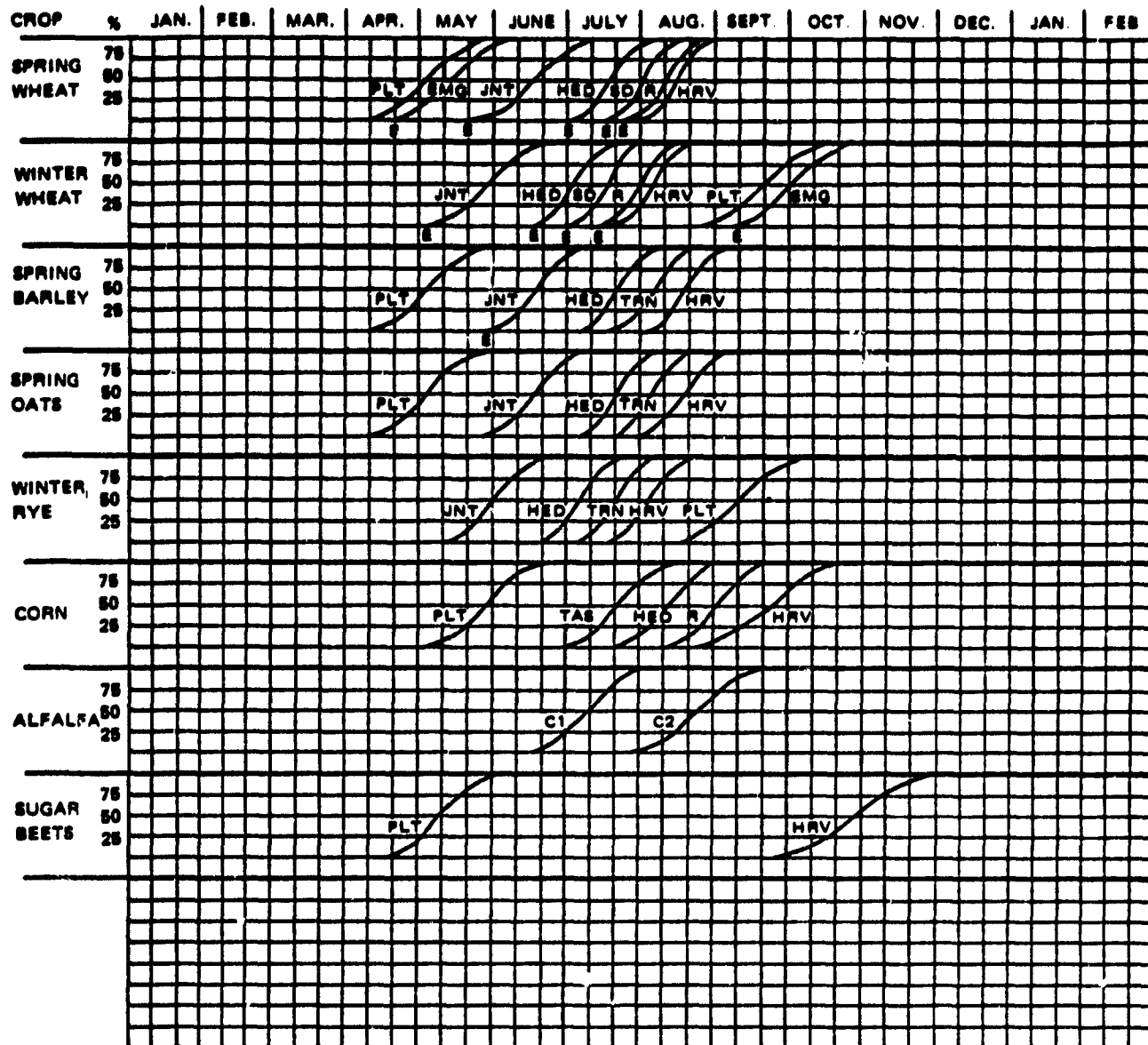


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HARV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 BLM Blooming  
 C Cut  
 FLR Flowering

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CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
MONTANA CRO 60 RECENT AVERAGE CROP CALENDARS

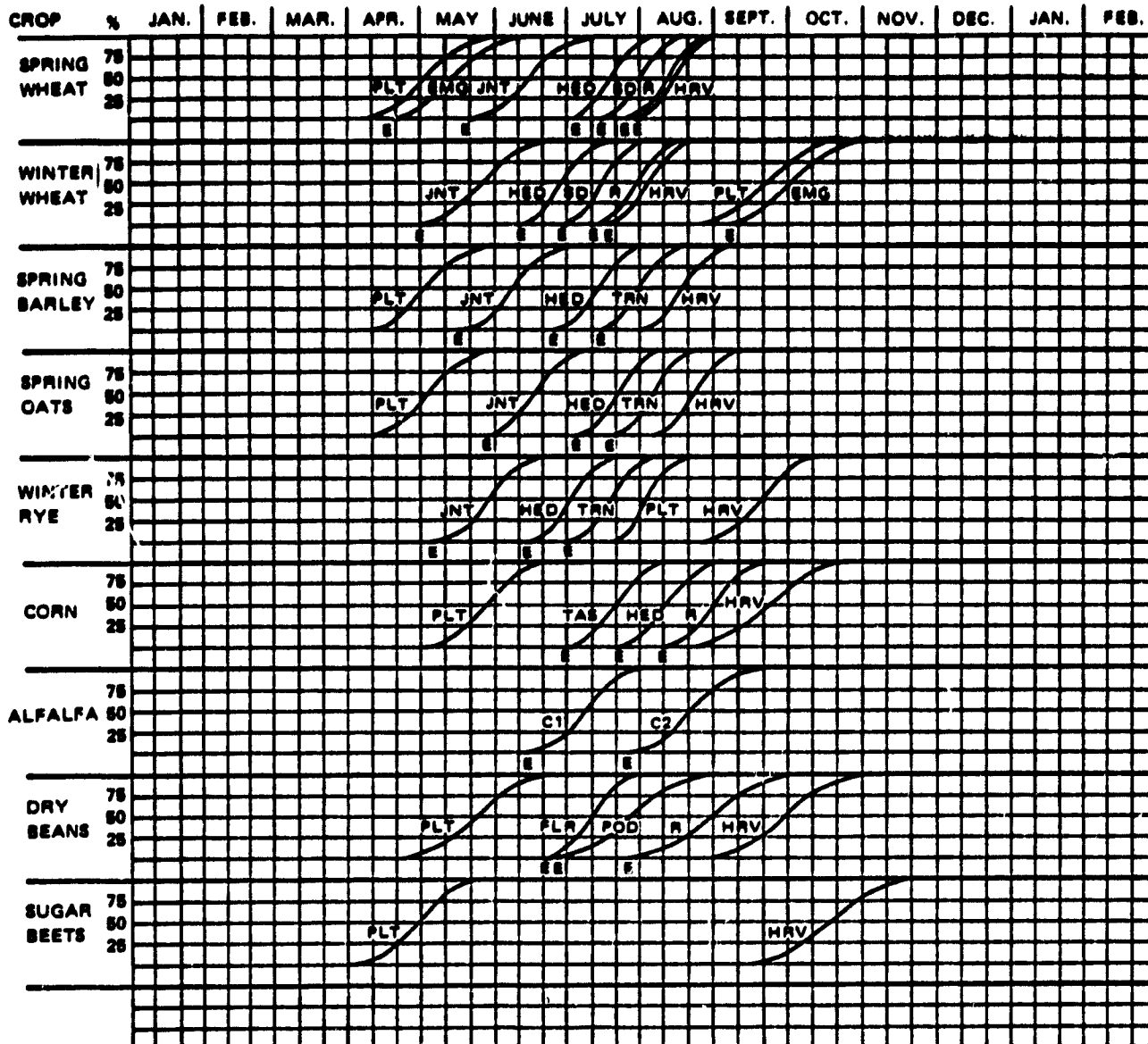


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 C Cut  
 TAS Tasseling

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CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
MONTANA CRO 70 RECENT AVERAGE CROP CALENDARS

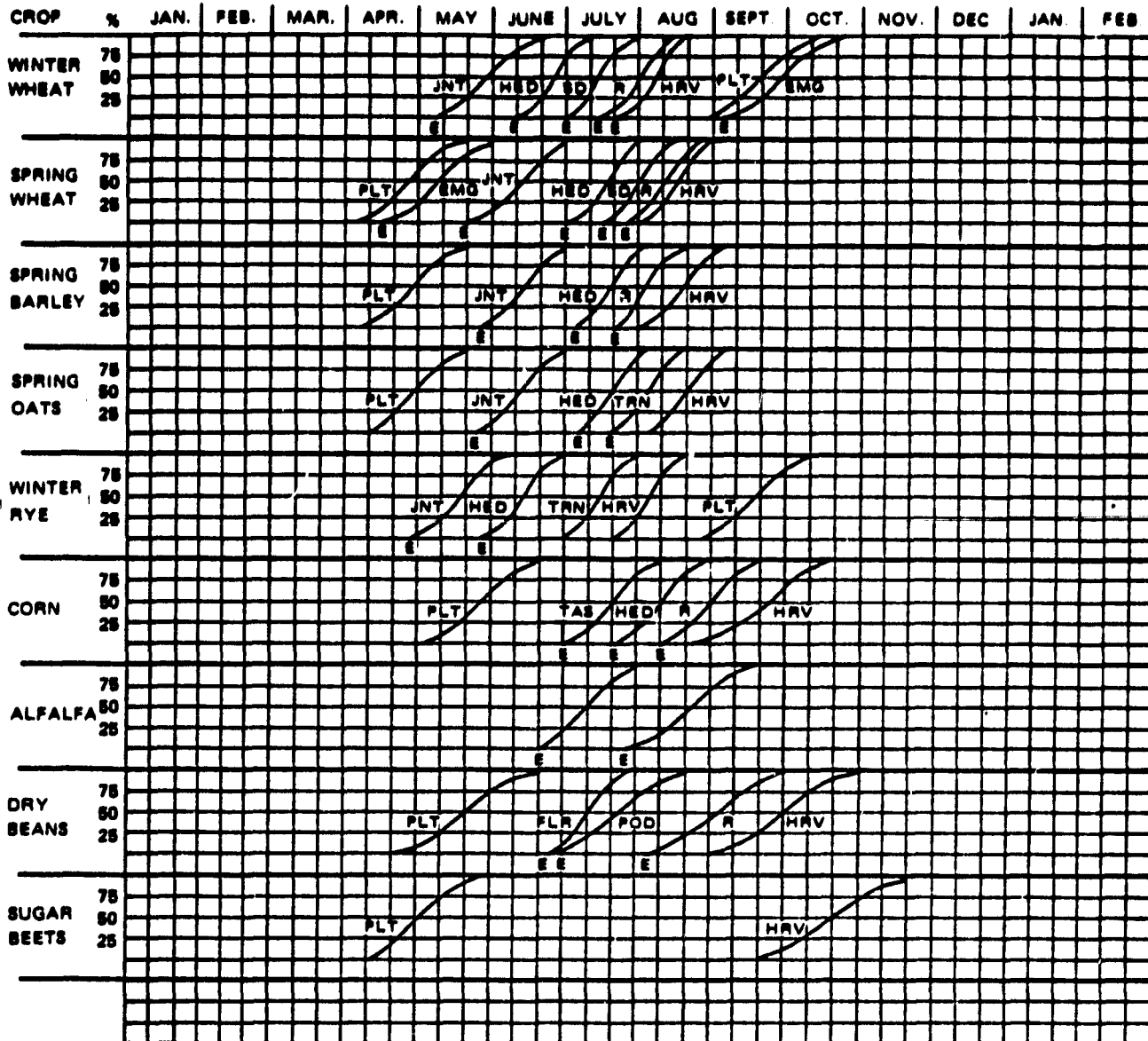


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasselling  
 C Cut  
 FLR Flowering

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CROP CALENDARS PLOTTED 9/1/68/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
MONTANA CRO 80 RECENT AVERAGE CROP CALENDARS

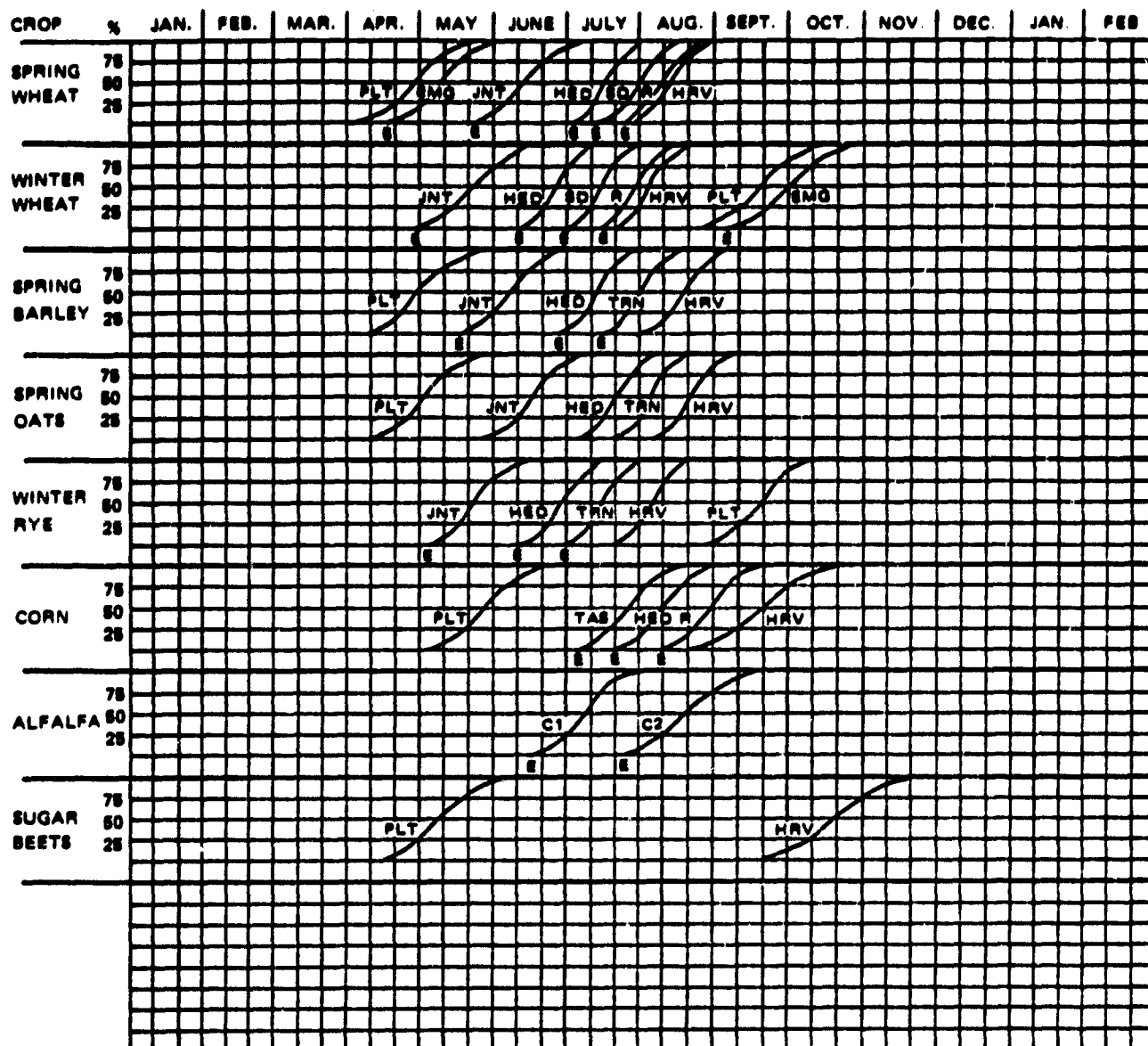


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 C Cut  
 TAS Tasseling

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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
MONTANA CROPS 90 RECENT AVERAGE CROP CALENDARS



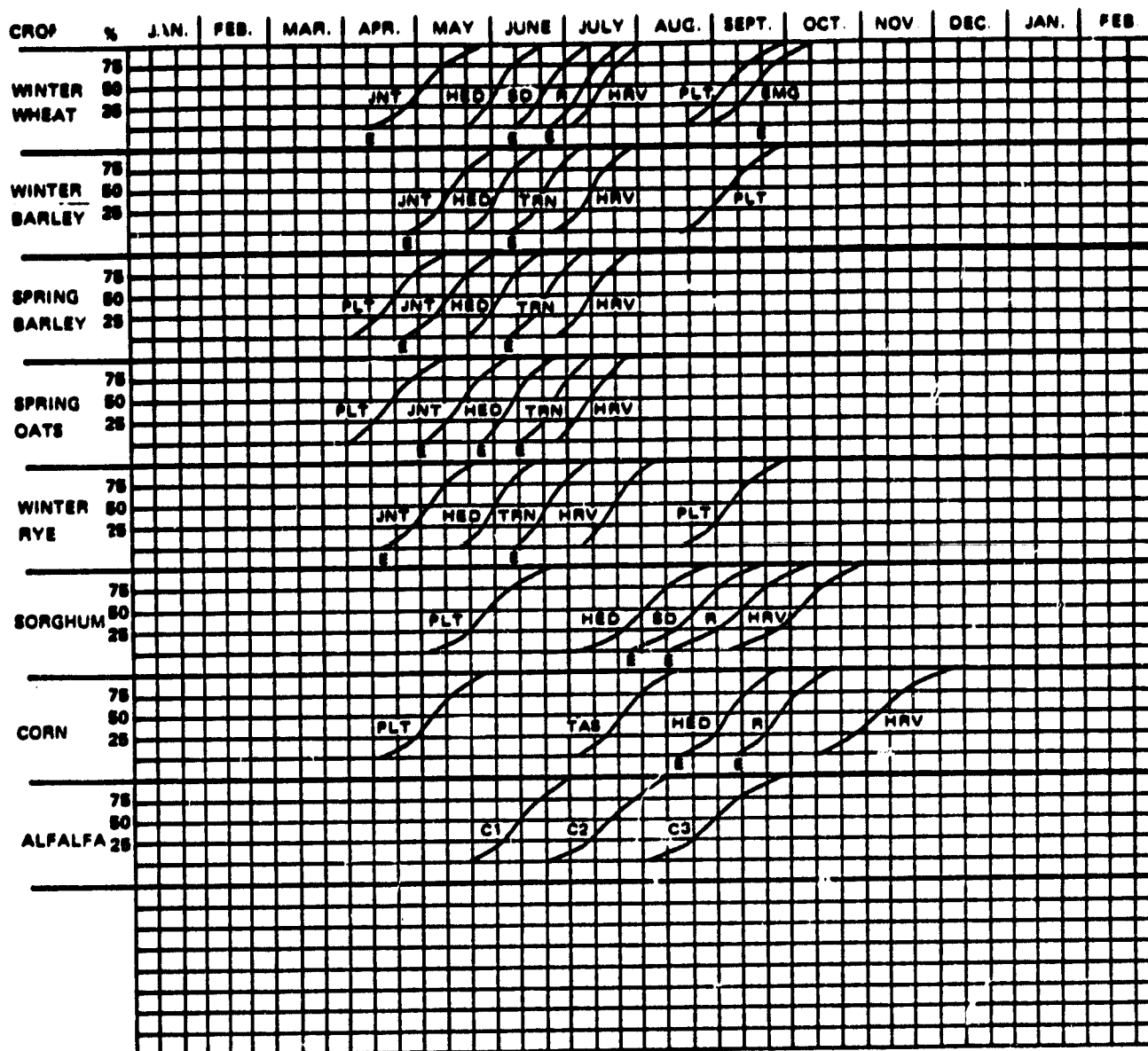
LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut



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CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NEBRASKA CRD 10 AVERAGE CROP CALENDARS ENDING IN 1967

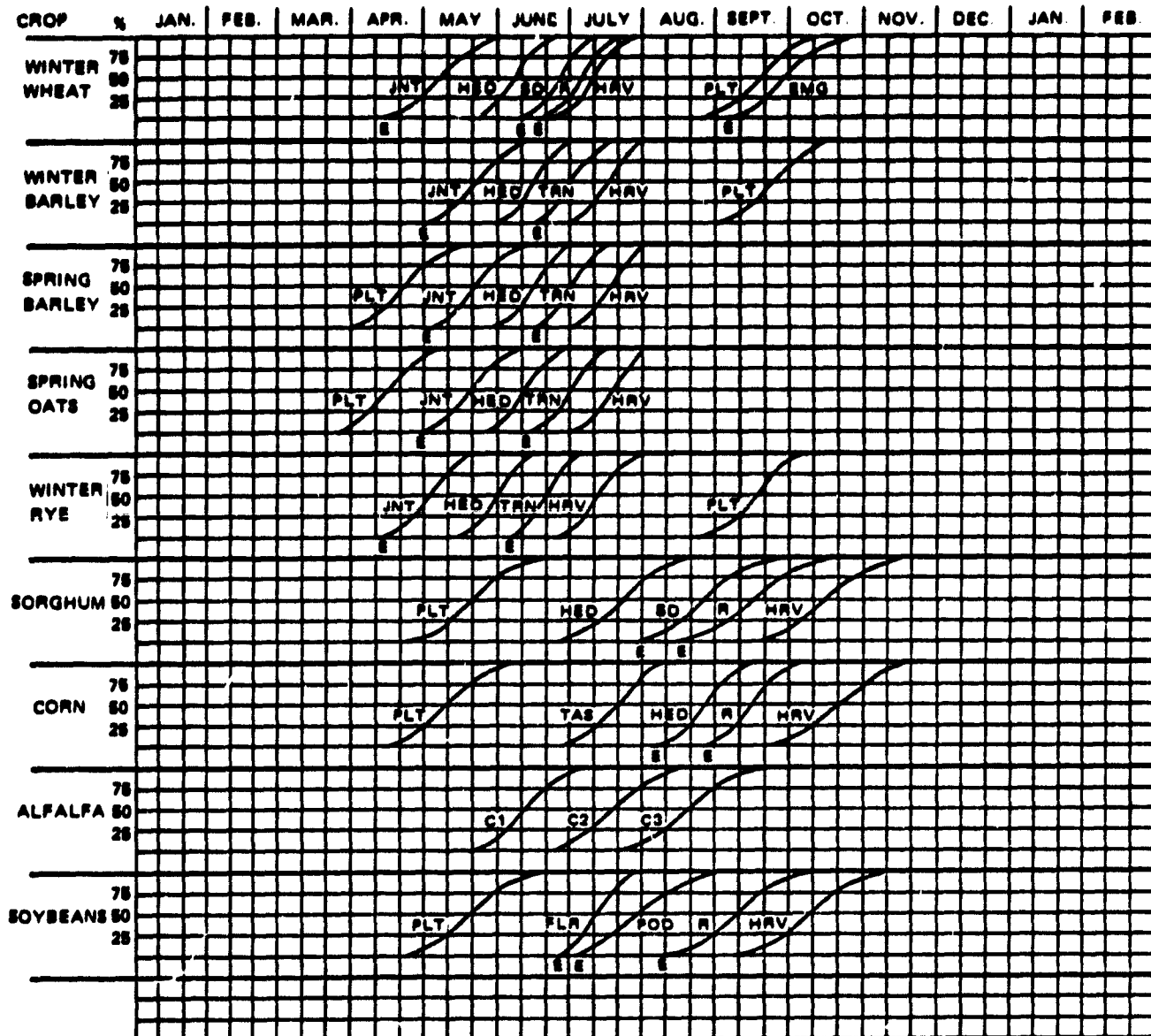


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut

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CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NEBRASKA CRD 50 AVERAGE CROP CALENDARS ENDING IN 1967

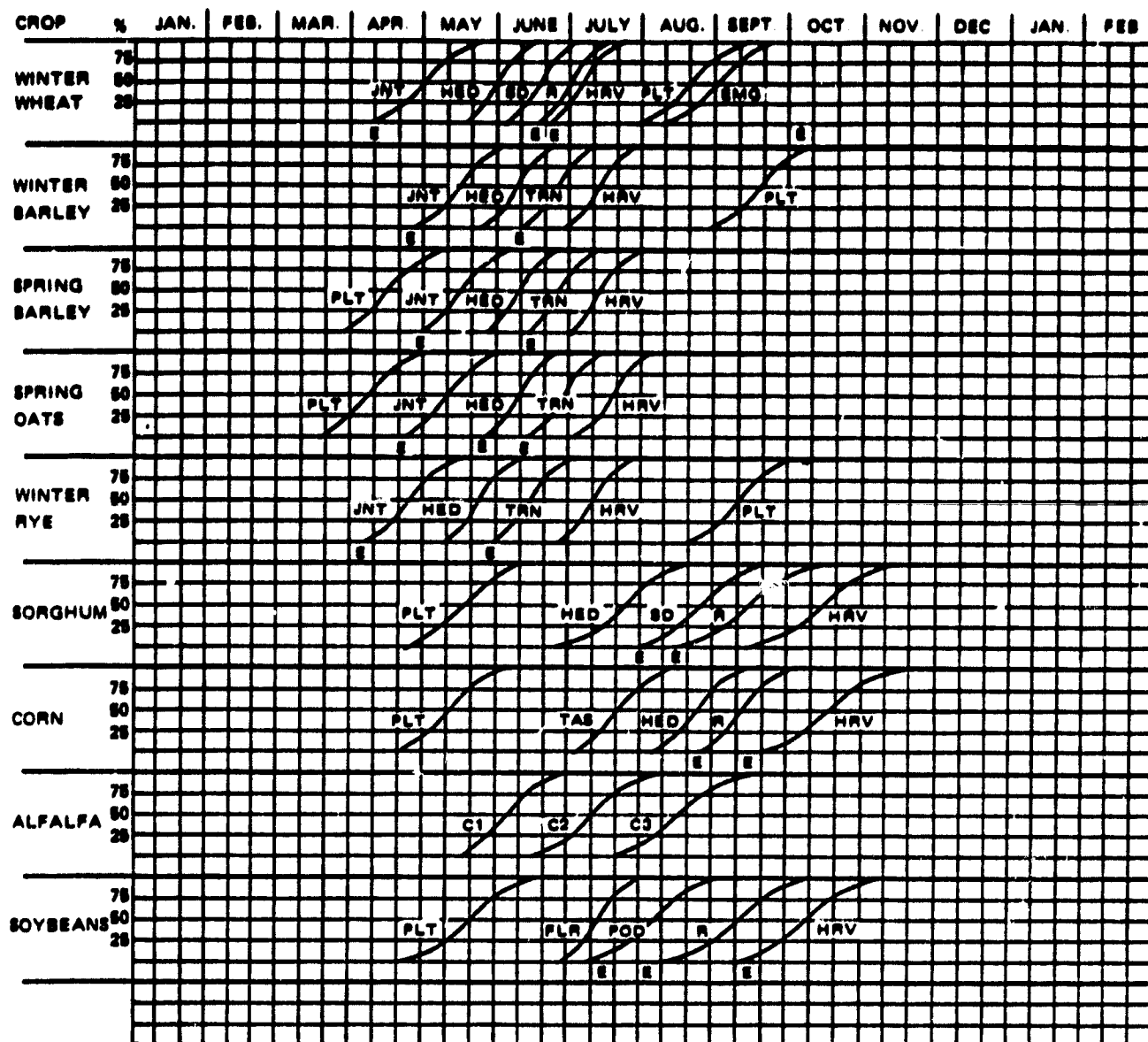


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering

ORIGINAL PAGE 13  
OF POOR QUALITY

CROP CALENDARS PLOTTED 01/06/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NEBRASKA CRD 60 AVERAGE CROP CALENDARS ENDING IN 1967

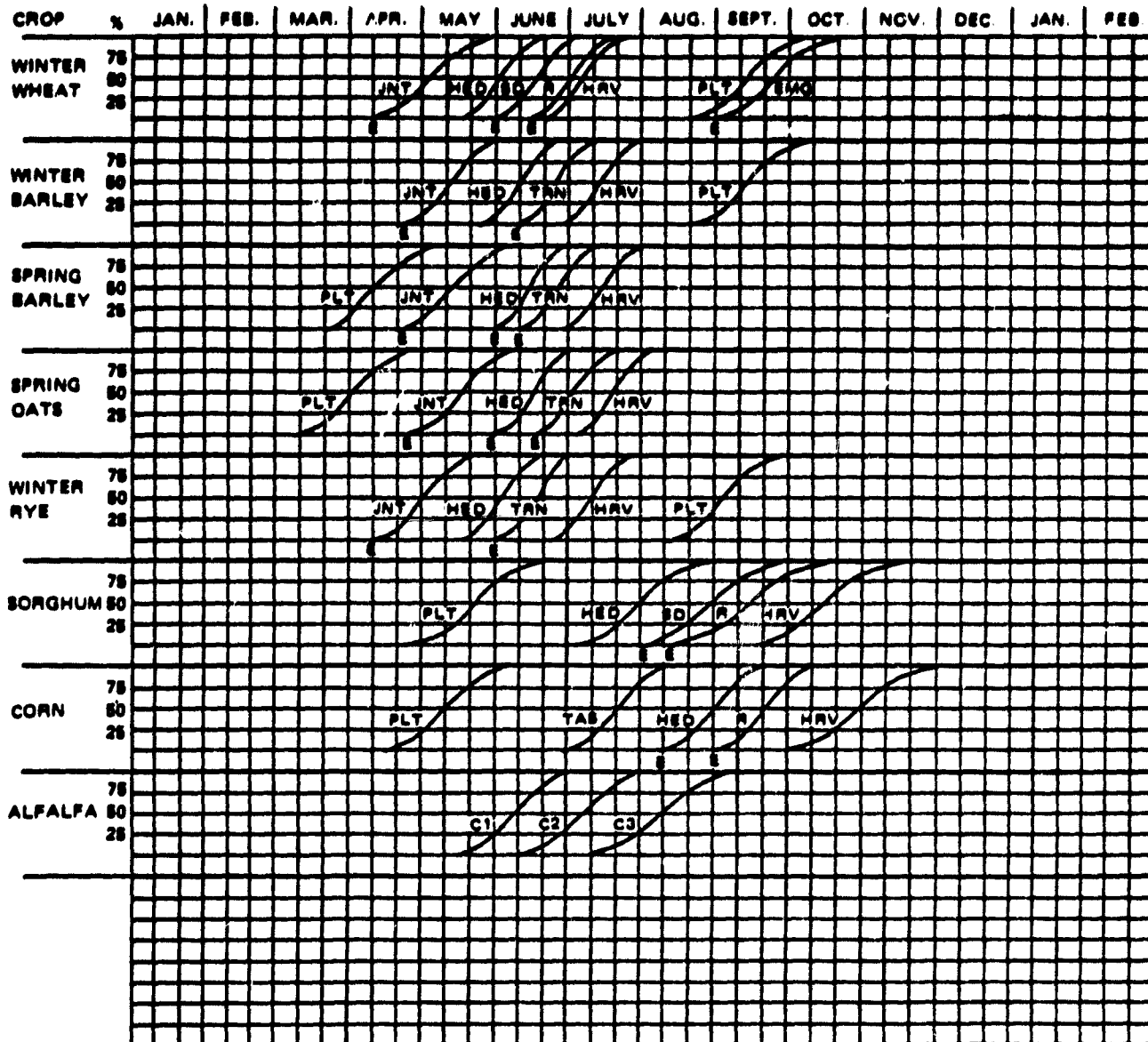


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning

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CROP CALENDARS PLOTTED 01/08/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NEBRASKA CRD 70 AVERAGE CROP CALENDARS ENDING IN 1967

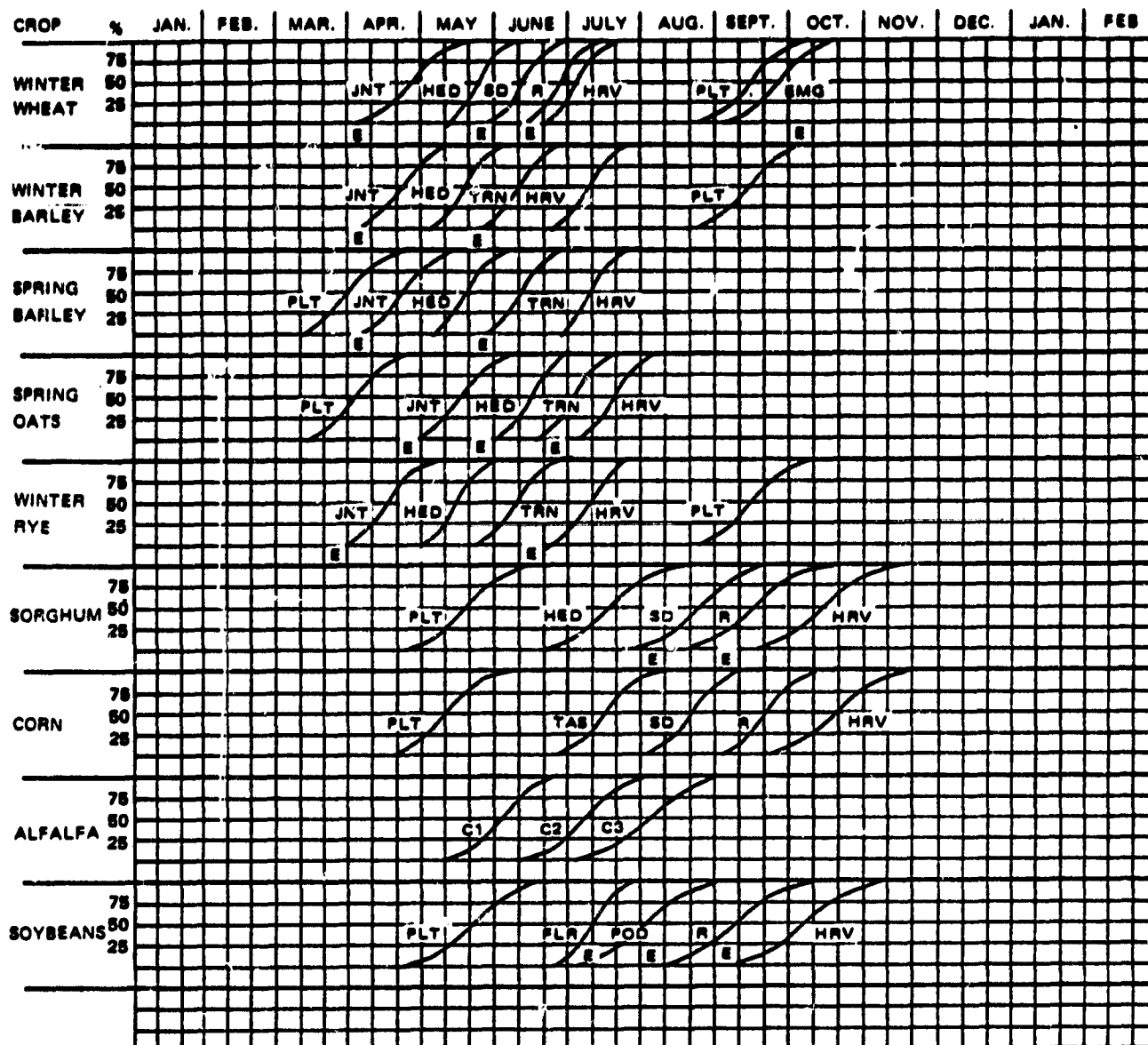


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TAN Turning  
 C Cut  
 FLR Flowering

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 6/106/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NEBRASKA CRO 80 AVERAGE CROP CALENDARS ENDING IN 1967

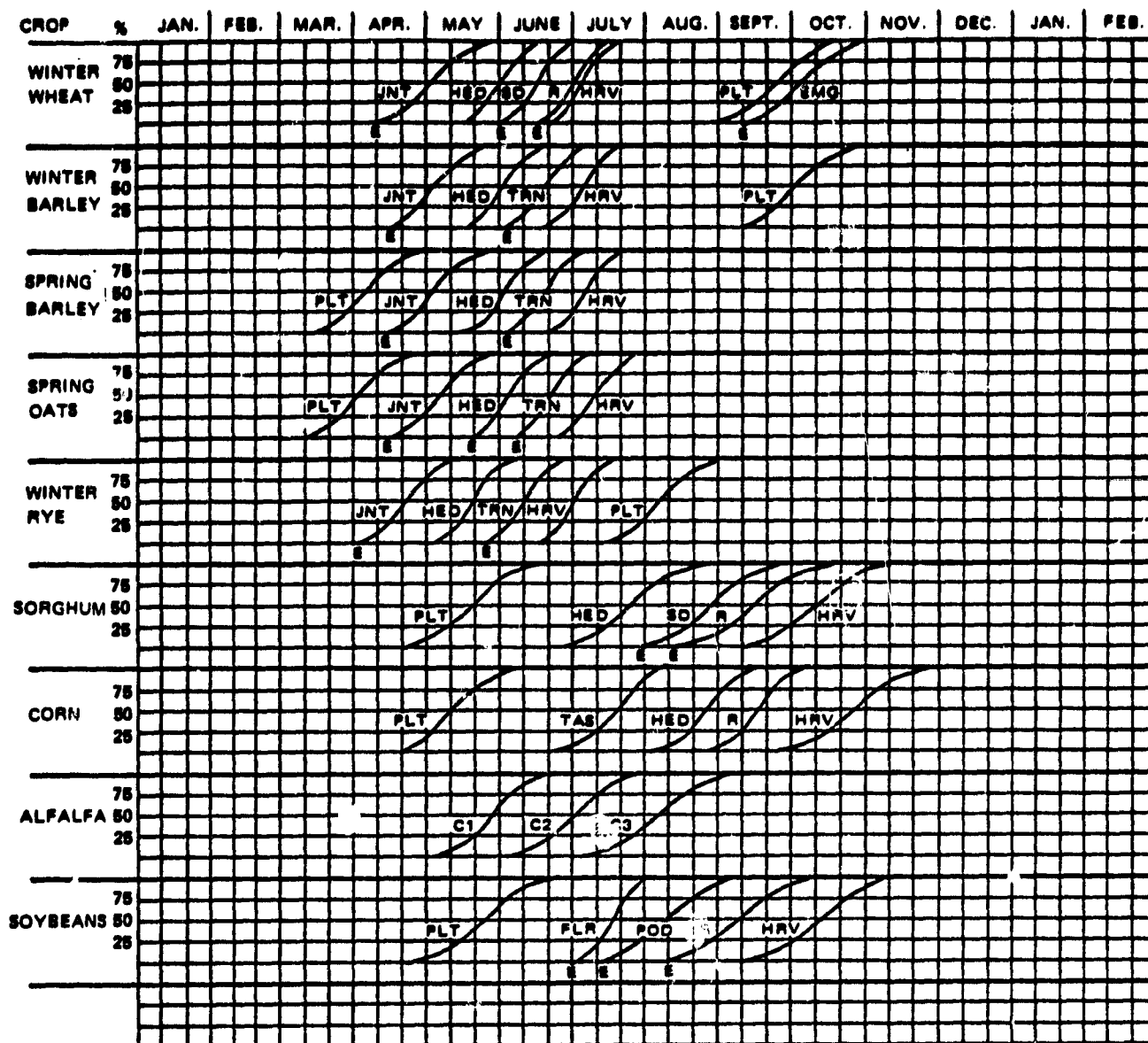


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 C Cut  
 FLR Flowering

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NEBRASKA CRD 90 AVERAGE CROP CALENDARS ENDING IN 1967

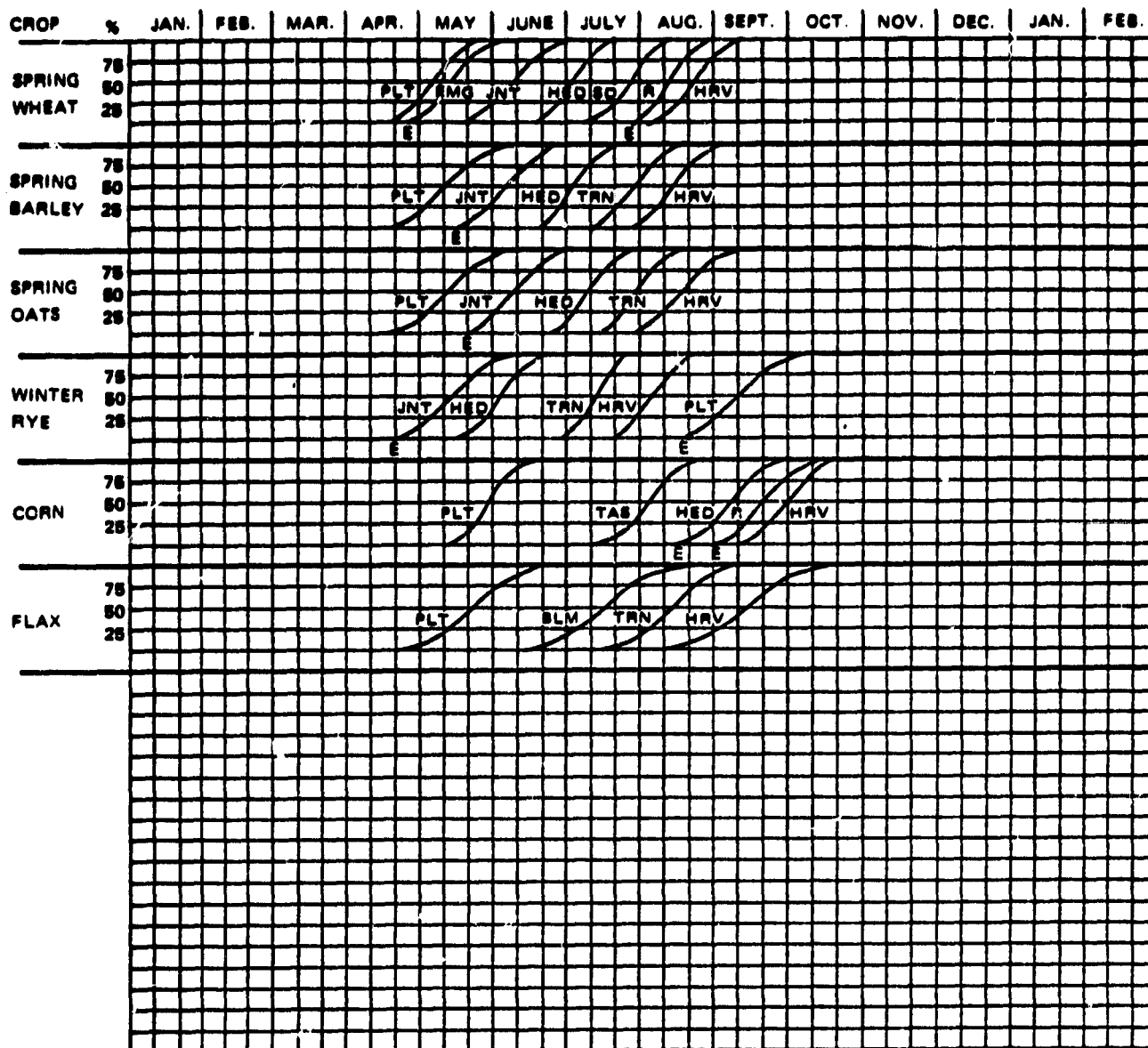


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
C Cut  
TAS Tasseling  
FLR Flowering

ORIGINAL PAGE IS  
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CROP CALENDAR PLOTTED 01/08/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NORTH DAKOTA CRD 10 AVERAGE CROP CALENDARS FROM 1952 TO 1964

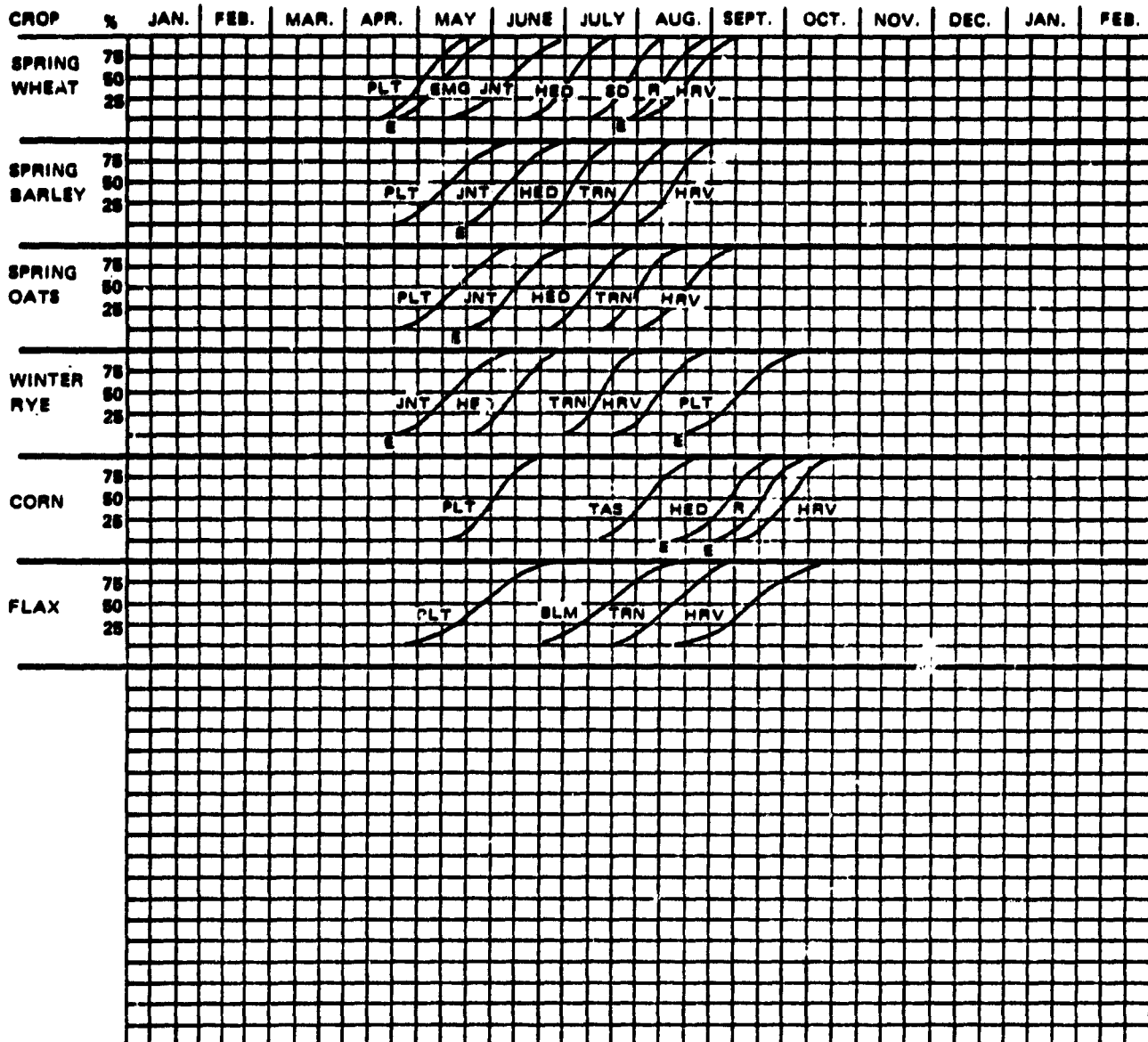


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
BLM Blooming

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NORTH DAKOTA CRD 20 AVERAGE CROP CALENDARS FROM 1962 TO 1964



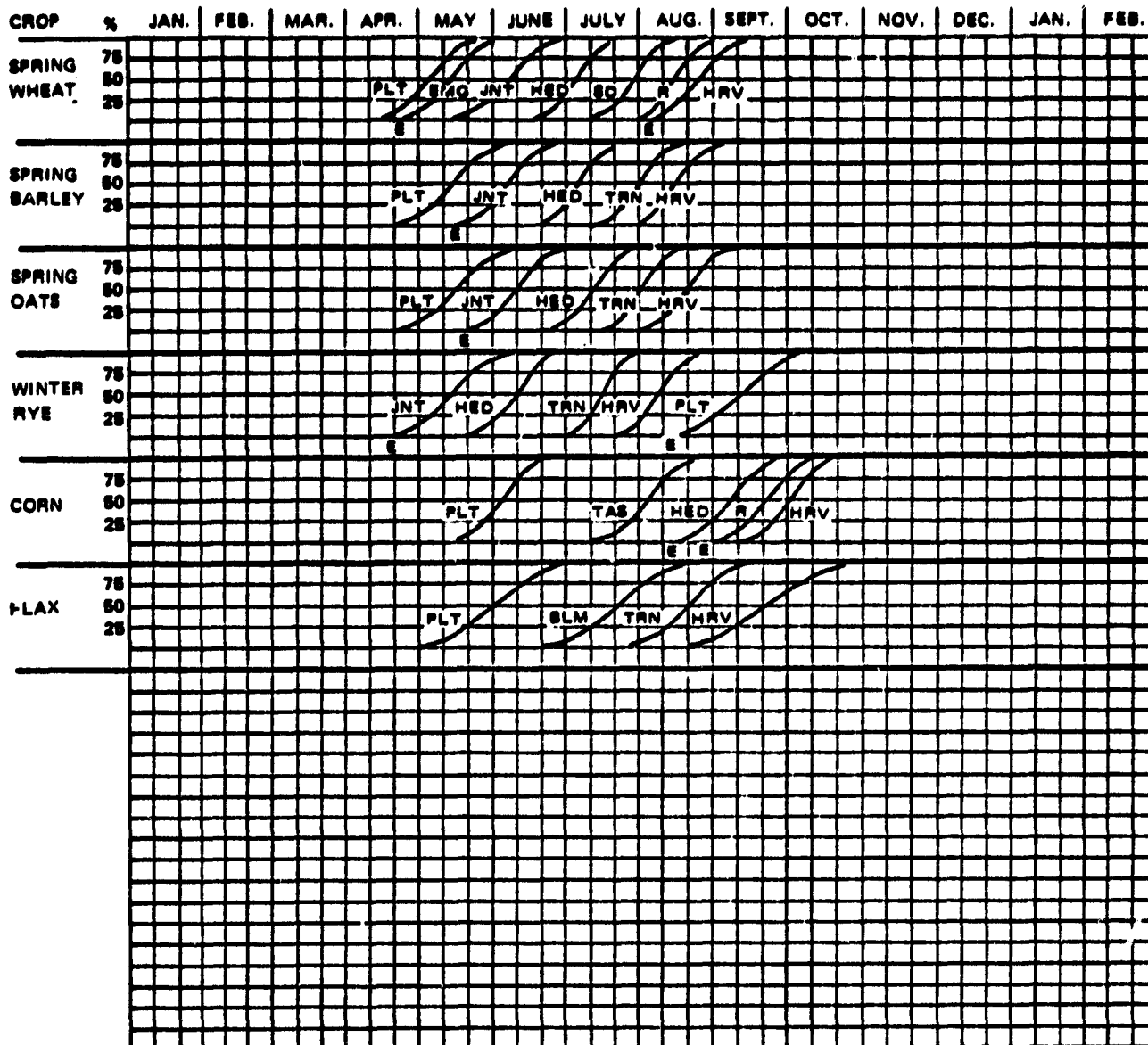
LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 BLM Blooming



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CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NORTH DAKOTA CRD 30 AVERAGE CROP CALENDARS FROM 1962 TO 1964

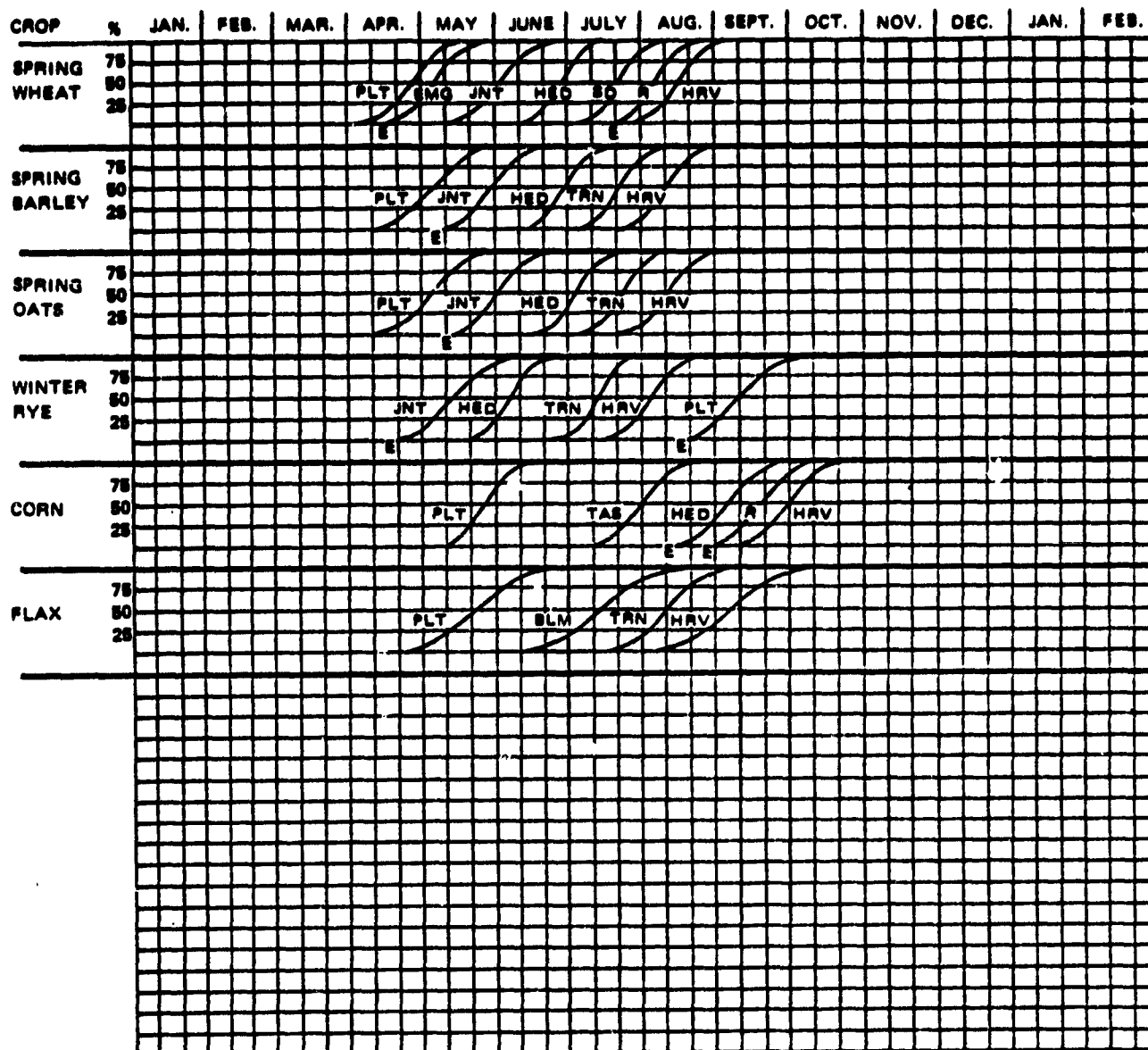


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
BLM Blooming

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CROP CALENDARS PLOTTED 01/08/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NORTH DAKOTA CRD 40 AVERAGE CROP CALENDARS FROM 1952 TO 1964

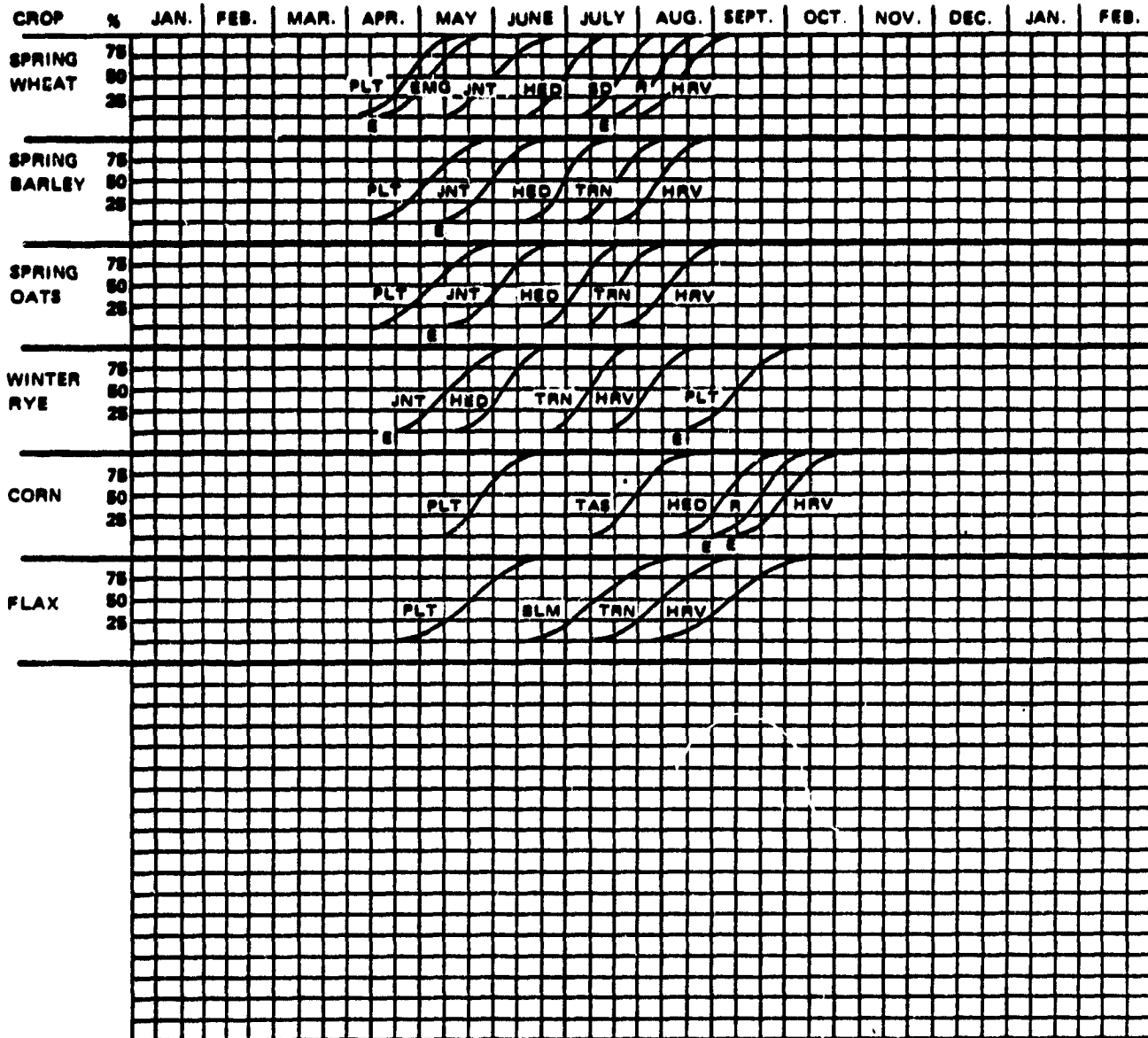


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 BLM Blooming

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/06/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NORTH DAKOTA CRD 50 AVERAGE CROP CALENDARS FROM 1952 TO 1964

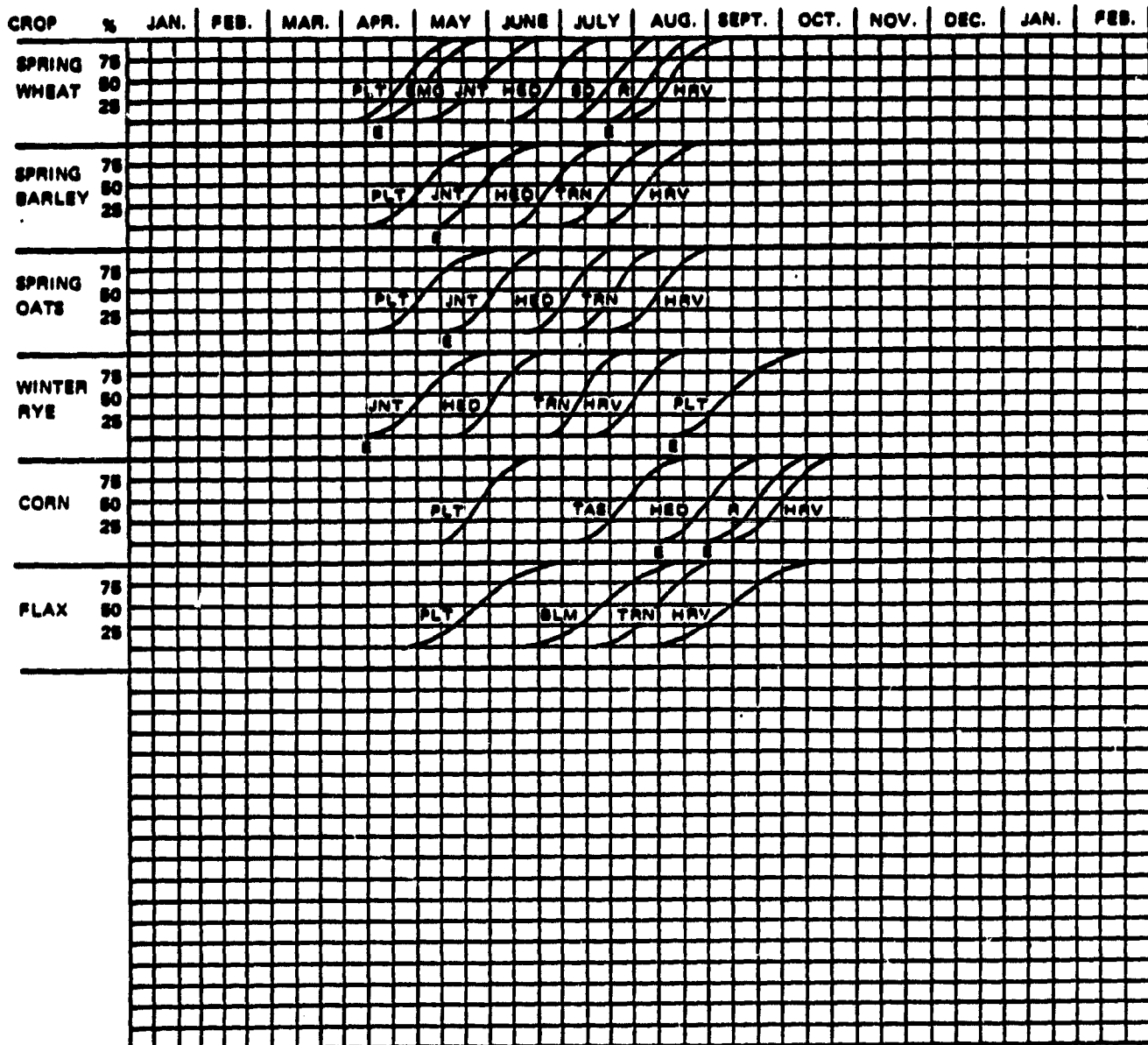


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
BLM Blooming

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NORTH DAKOTA CRD 60 AVERAGE CROP CALENDARS FROM 1952 TO 1964

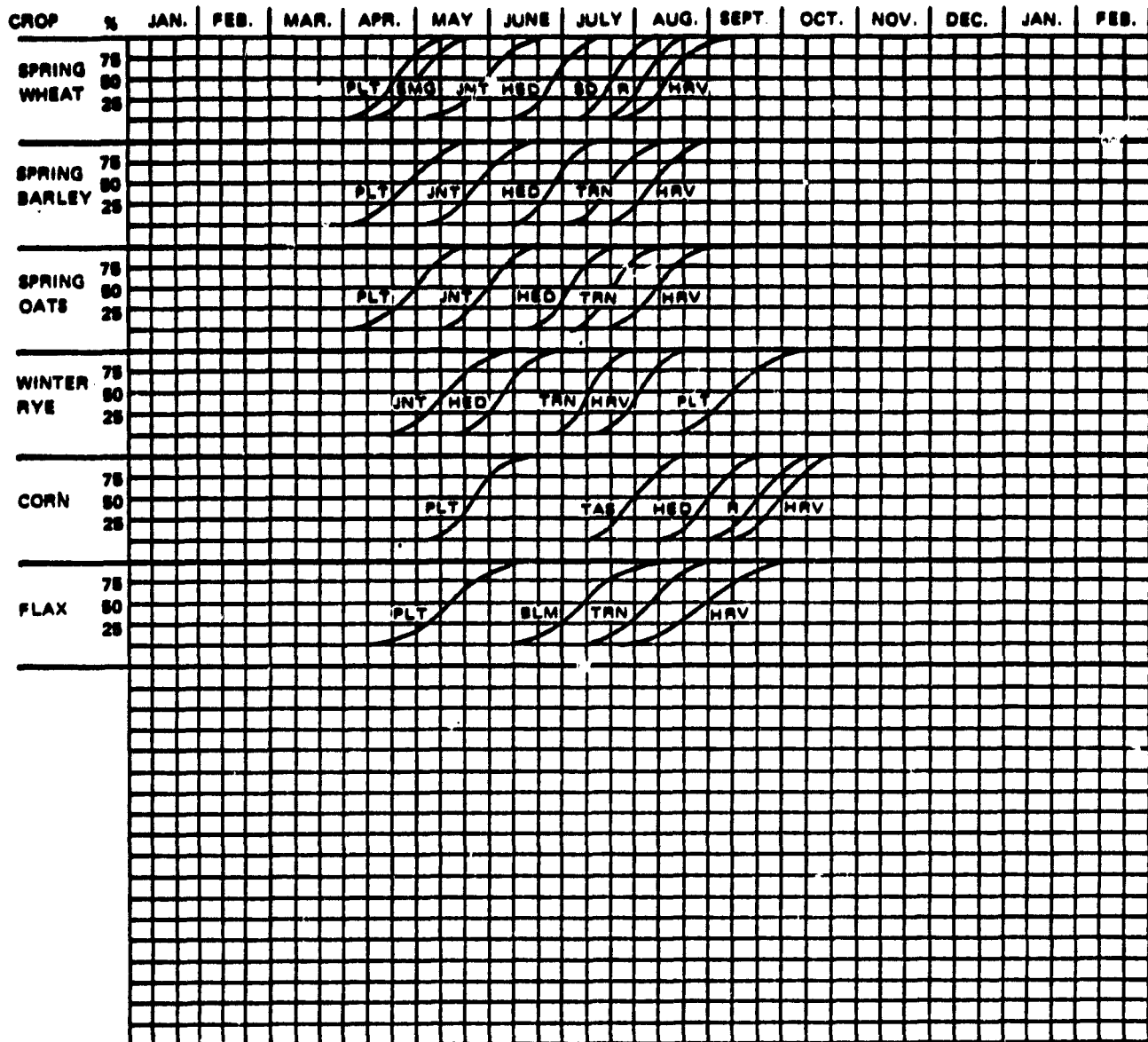


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HARV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
BLM Blooming

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CROP CALENDARS PLOTTED 01/06/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NORTH DAKOTA CRD 70 AVERAGE CROP CALENDARS FROM 1952 TO 1964

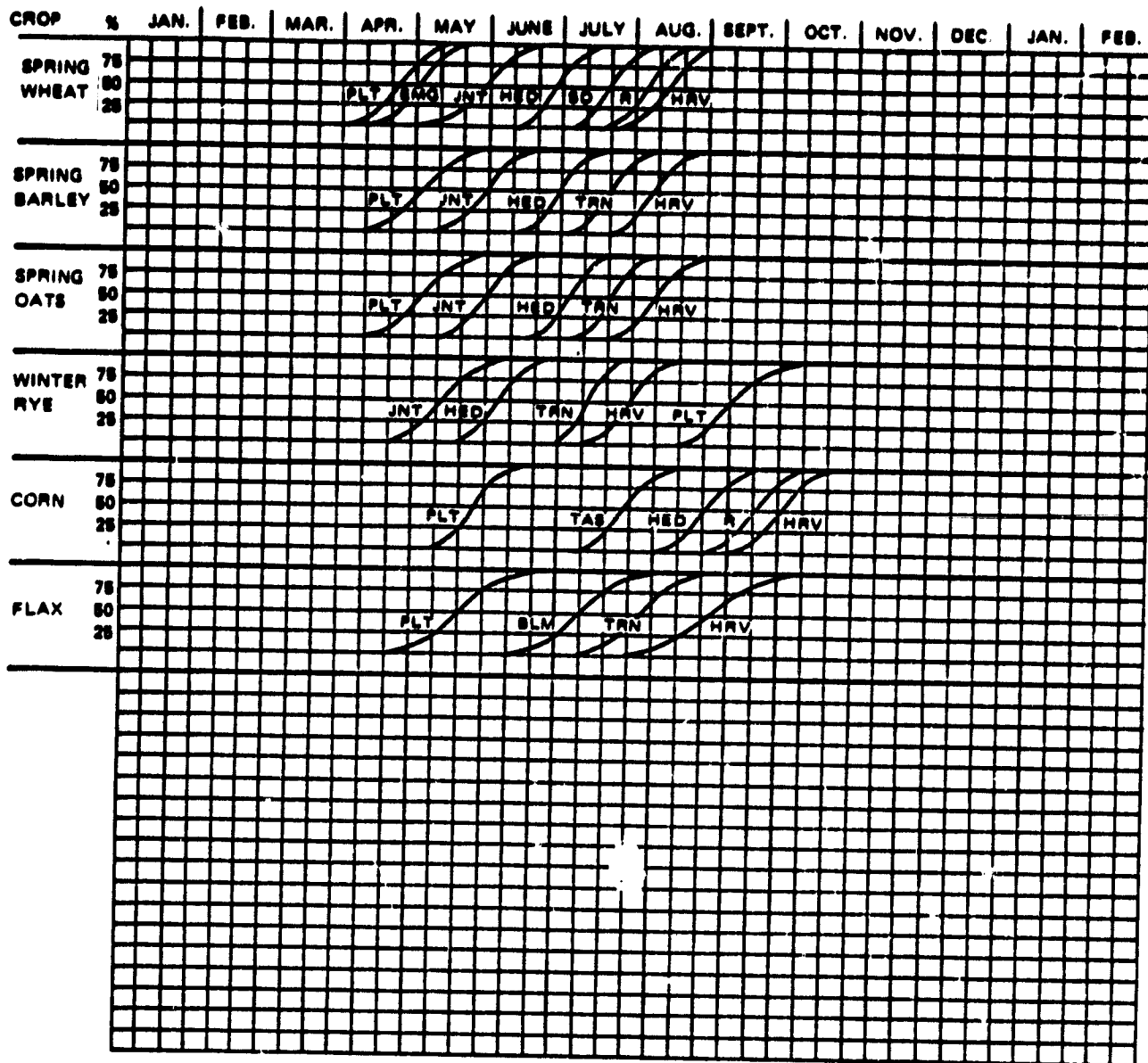


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 BLM Blooming

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/08/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NORTH DAKOTA CROPS TO AVERAGE CROP CALENDARS FROM 1962 TO 1964

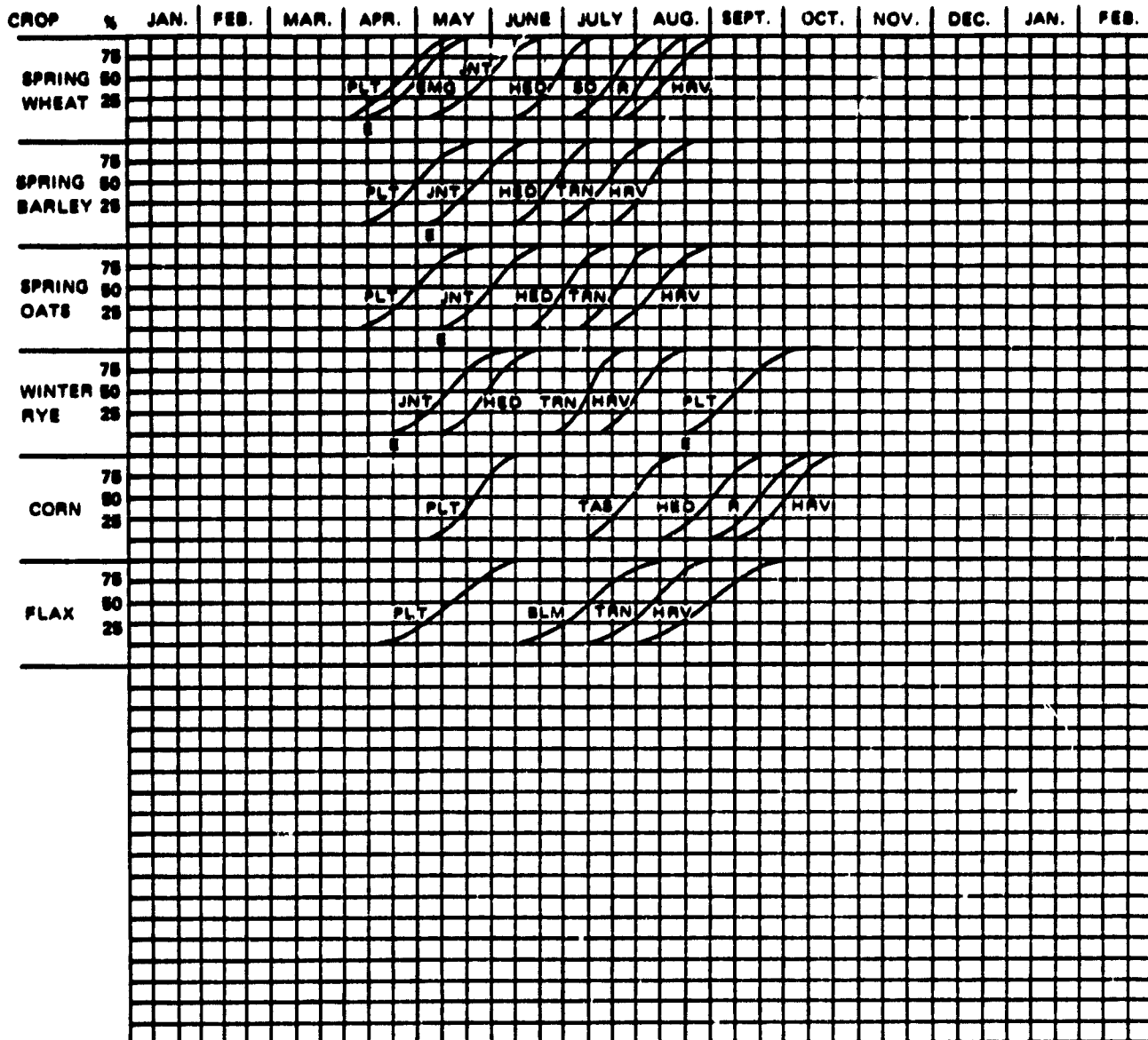


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 BLM Blooming

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CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
NORTH DAKOTA CRD 90 AVERAGE CROP CALENDARS FROM 1952 TO 1964

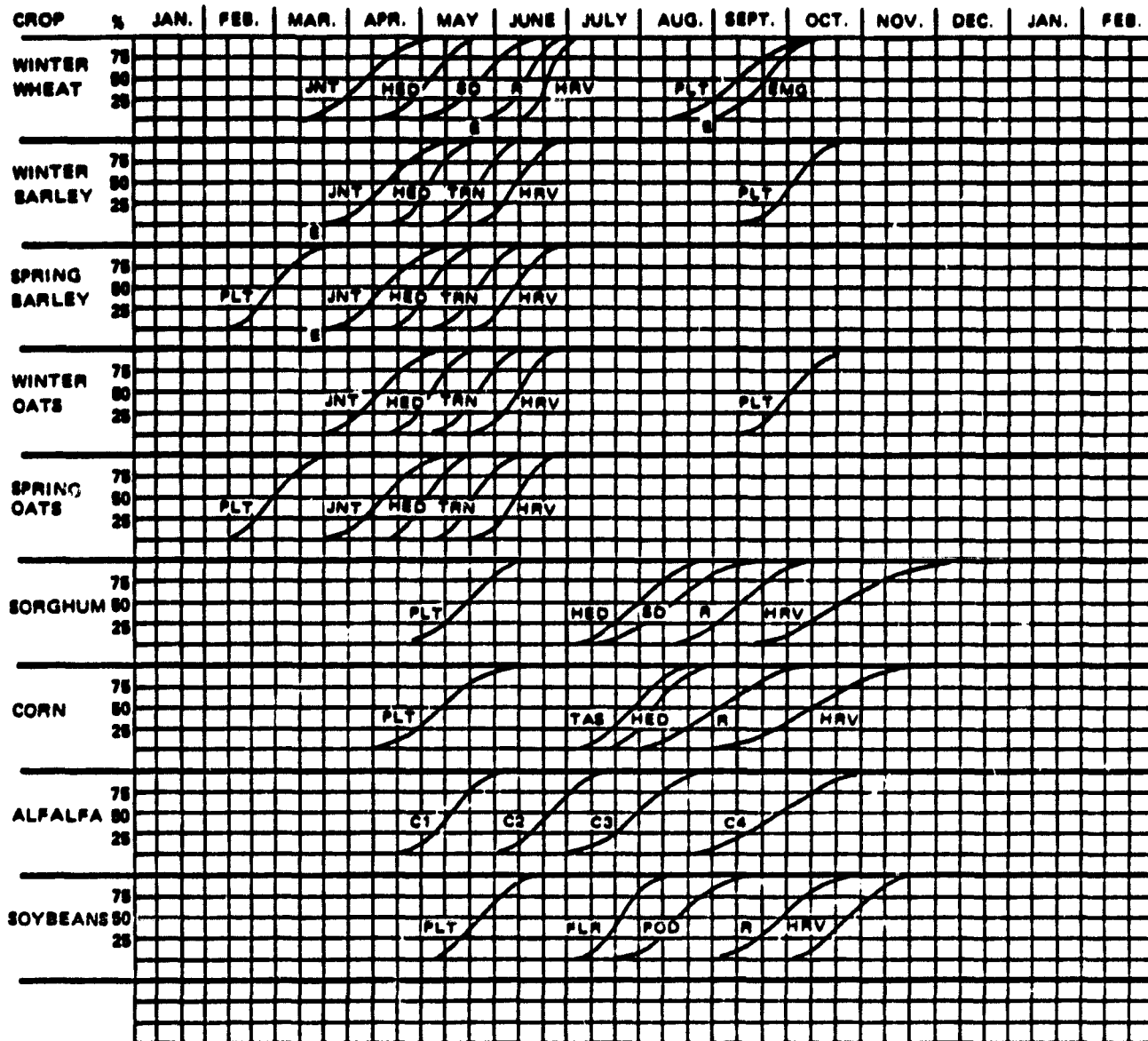


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HARV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
BLM Blooming

# ORIGINAL PAGE IS OF POOR QUALITY

CROP CALENDARS PLOTTED 01/08/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
OKLAHOMA CRD 1; AVERAGE CROP CALENDARS FROM 1964 TO 1973



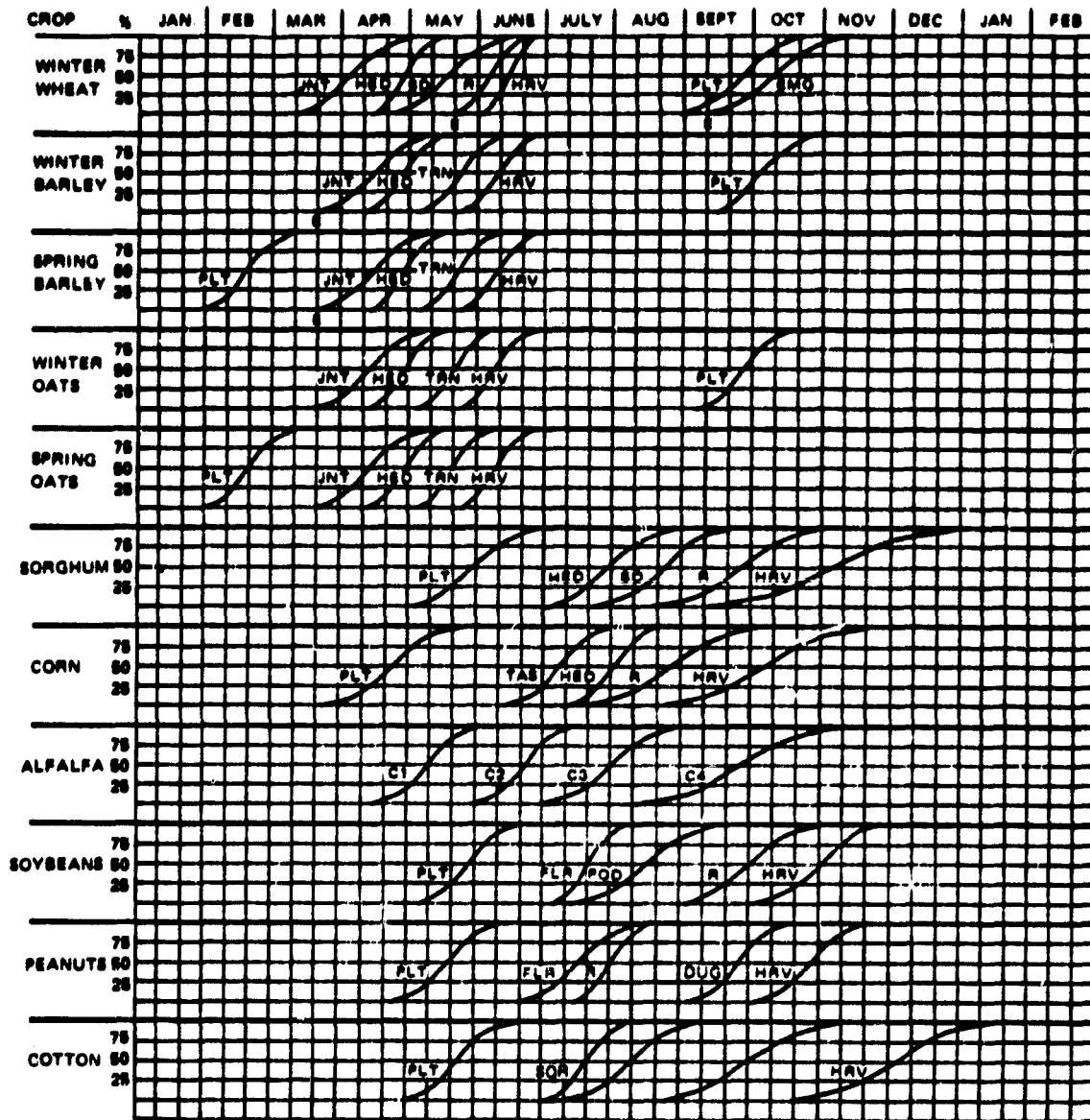
## LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering



# ORIGINAL PAGE IS OF POOR QUALITY

CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
OKLAHOMA CRD 24 AVERAGE CROP CALENDARS FROM 1964 TO 1973

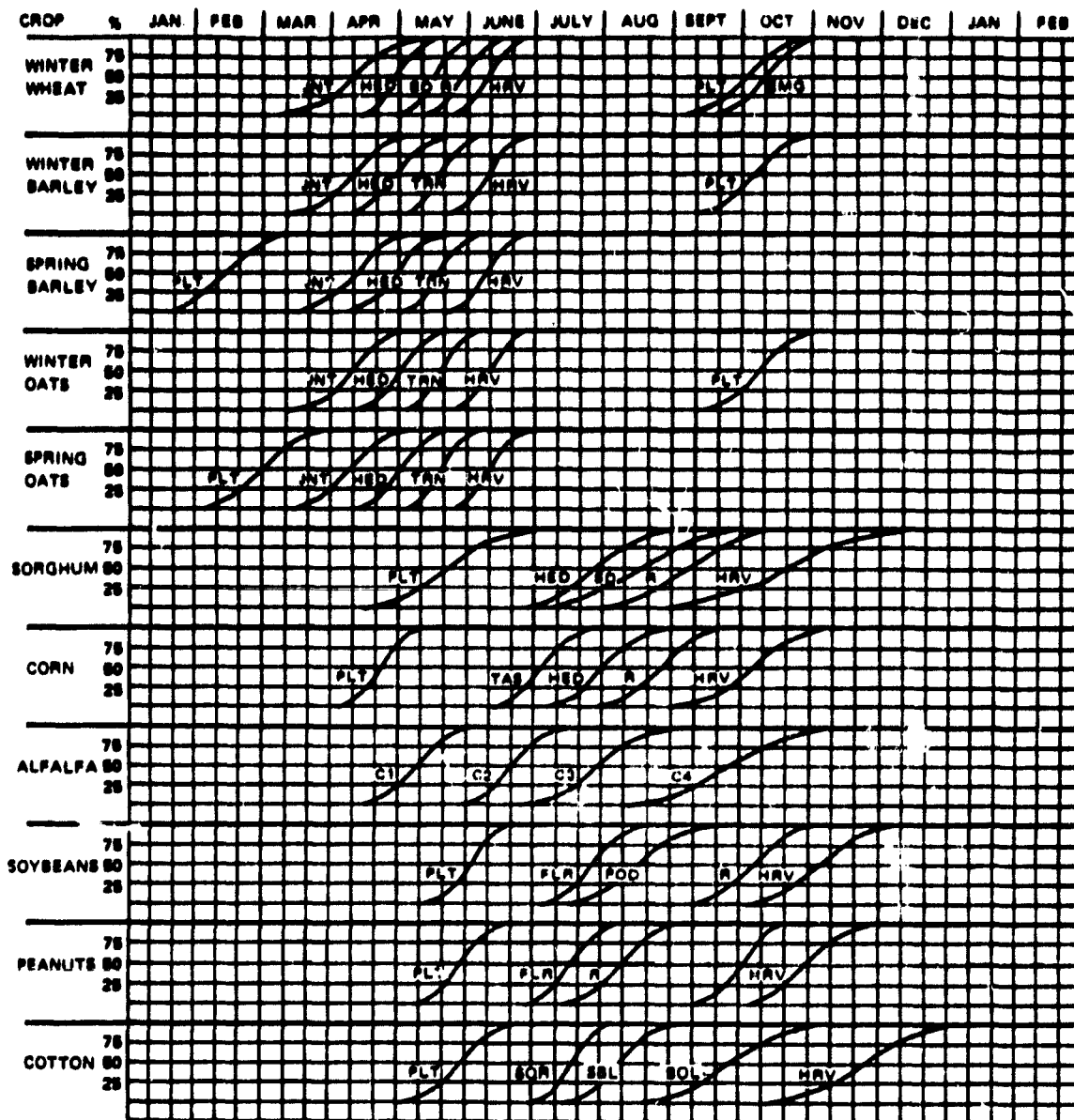


## LEGEND

E	Under stage name, indicates rough estimate of date
EMG	Emergence
HED	Heading
HRV	Harvest
JNT	Jointing
PLT	Planting
R	Ripe
SD	Soft dough
TRN	Turning
TAS	Tasseling
FLR	Flowering
SBL	Soft ball
SOL	Bolling
SQR	Squaring

# ORIGINAL PAGE IS OF POOR QUALITY

CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
OKLAHOMA CRD 37 AVERAGE CROP CALENDARS FROM 1964 TO 1973

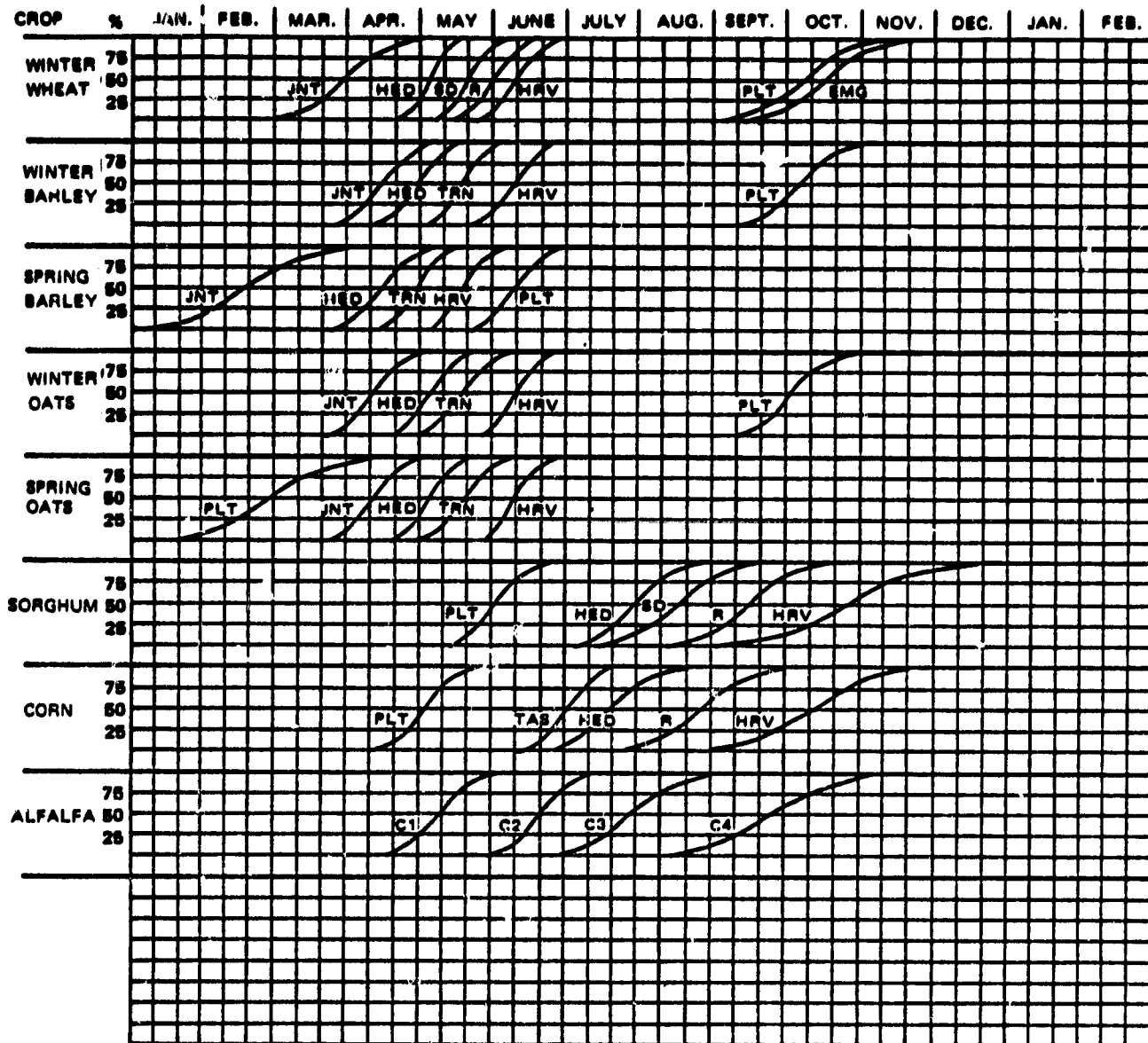


## LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TAL Tasseling  
FLR Flowering  
SQR Squaring  
SBL Soft ball  
BOL Bolling

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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
OKLAHOMA CHL 42 AVERAGE CROP CALENDARS FROM 1964 TO 1973

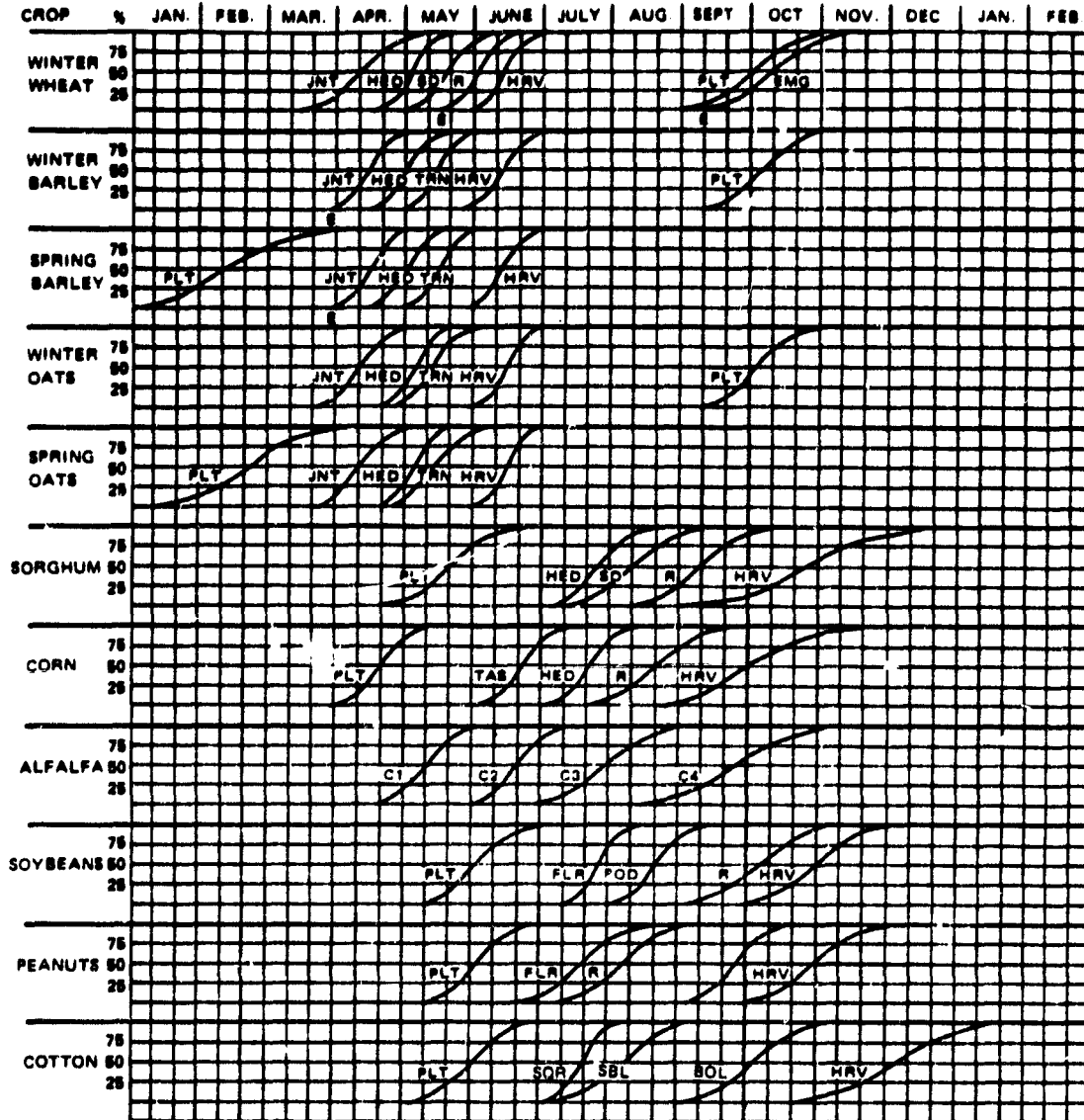


#### LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut

# ORIGINAL PAGE 13 OF POOR QUALITY

CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
OKLAHOMA CRD 55 AVERAGE CROP CALENDARS FROM 1964 TO 1973

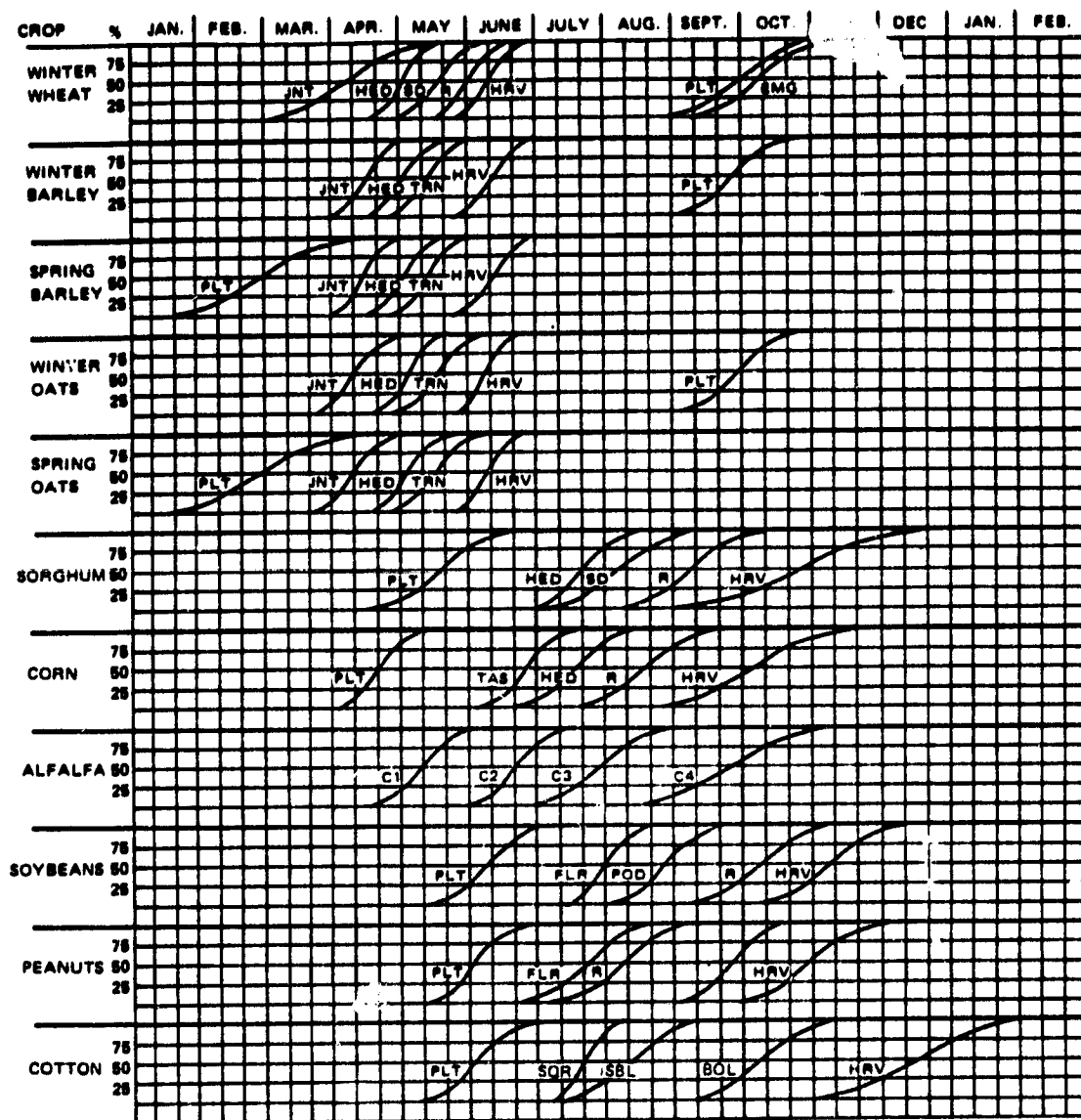


## LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering  
SQR Squaring  
SBL Soft boll  
BOL Bolling

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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
OKLAHOMA CRD 66 AVERAGE CROP CALENDARS FROM 1964 TO 1973

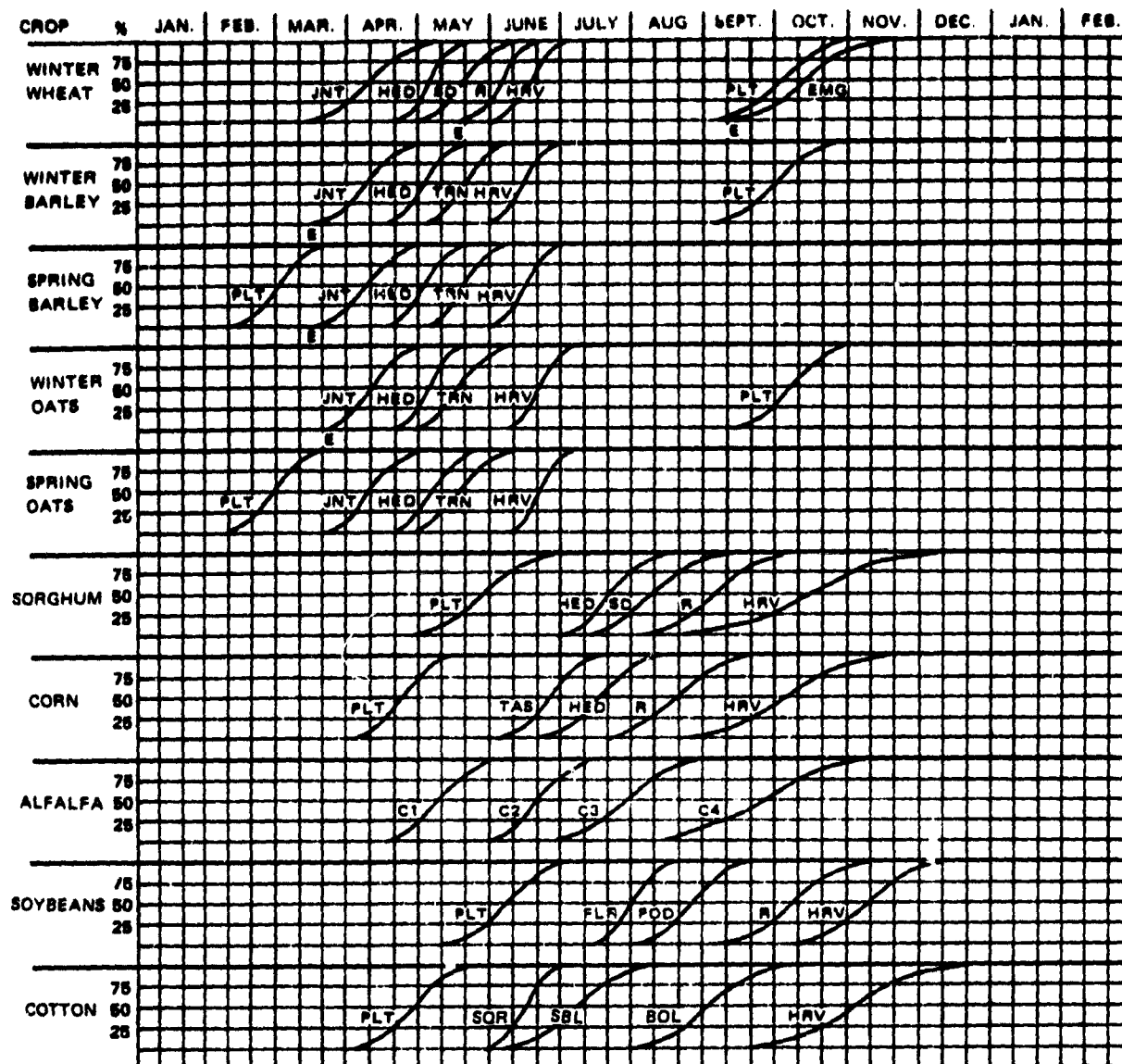


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering  
SQR Squaring  
SBL Soft ball  
BOL Boiling

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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
OKLAHOMA CRD 73 AVERAGE CROP CALENDARS FROM 1964 TO 1973

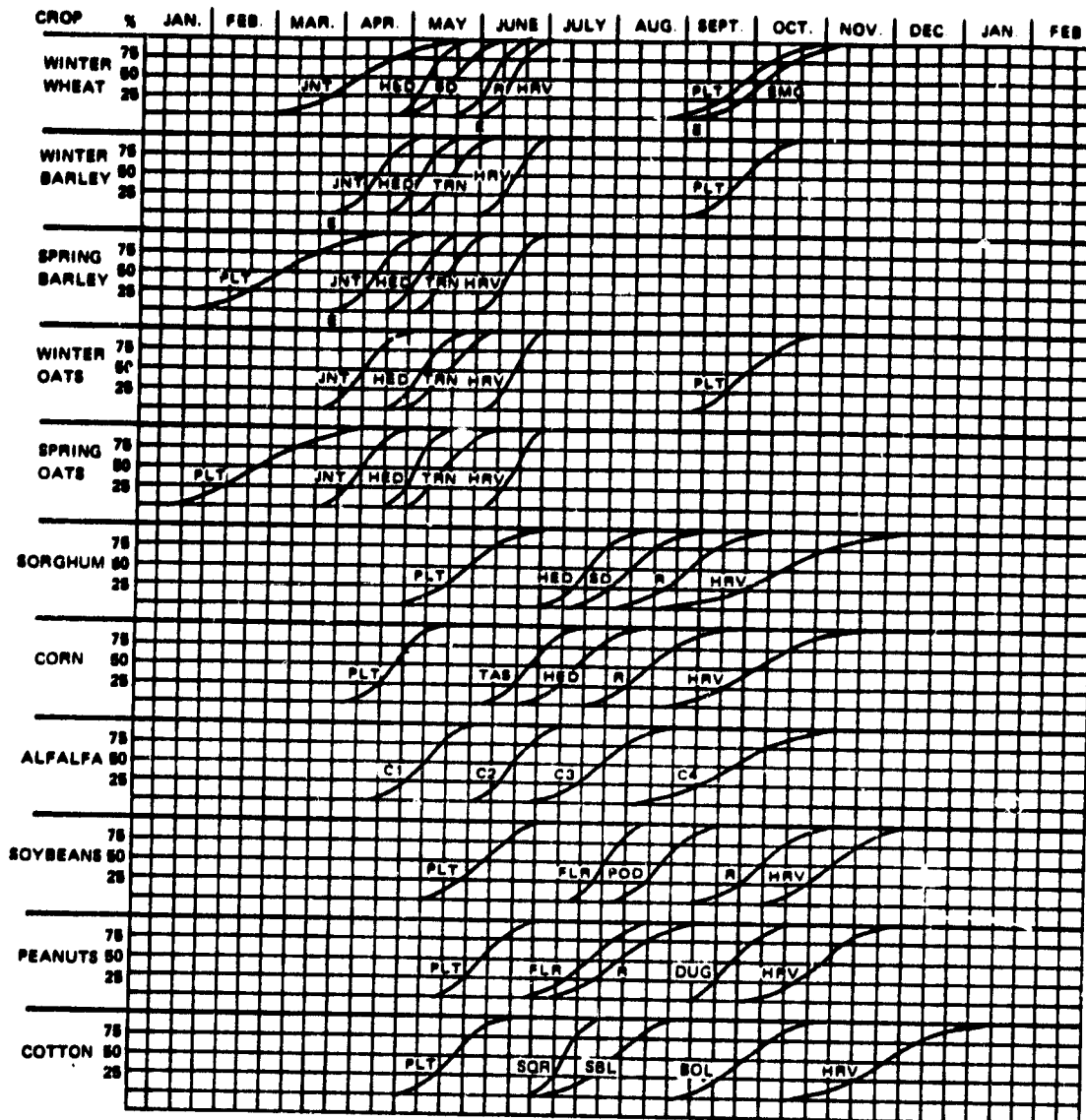


LEGEND

E	Under stage name, indicates rough estimate of date
EMG	Emergence
HED	Heading
HARV	Harvest
JNT	Jointing
PLT	Planting
R	Ripe
SD	Soft dough
TRN	Turning
TAS	Tasseling
C	Cut
FLR	Flowering
SQR	Squaring
SBL	Soft boll
BOL	Bolling

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CROP CALENDARS PLOTTED 01/03/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
OKLAHOMA CRD 86 AVERAGE CROP CALENDARS FROM 1964 TO 1973

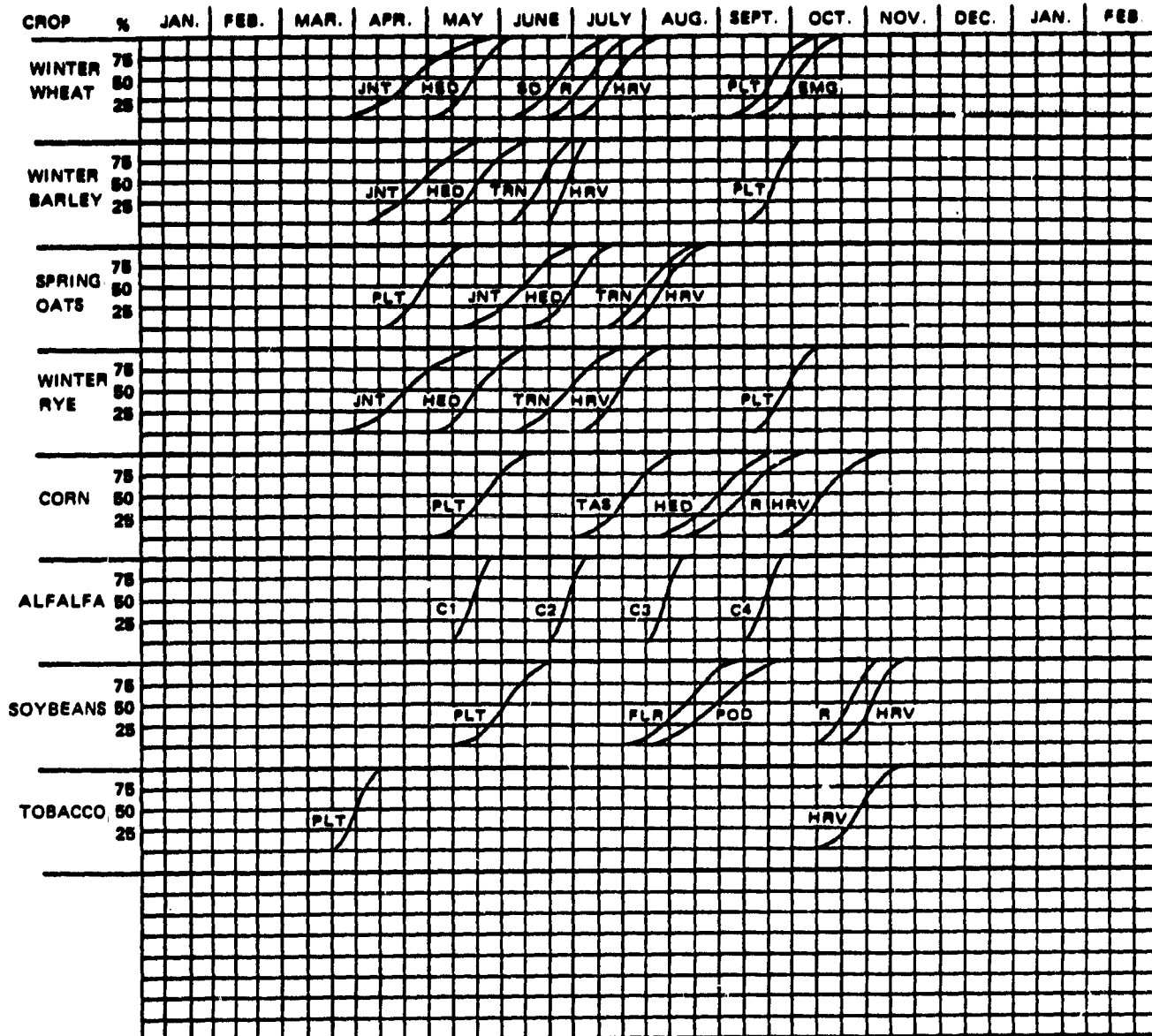


#### LEGEND

E	Under stage name, indicates rough estimate of date
EMG	Emergence
HED	Heading
HRV	Harvest
JNT	Jointing
PLT	Planting
R	Ripe
SD	Soft dough
TRN	Turning
TAS	Tasseling
C	Cut
FLR	Flowering
DUG	Dug
SQR	Squaring
SBL	Soft boll
BOL	Bolling

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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
PENNSYLVANIA ESTIMATED AVERAGE CROP CALENDARS FROM USDA BULLETIN 283



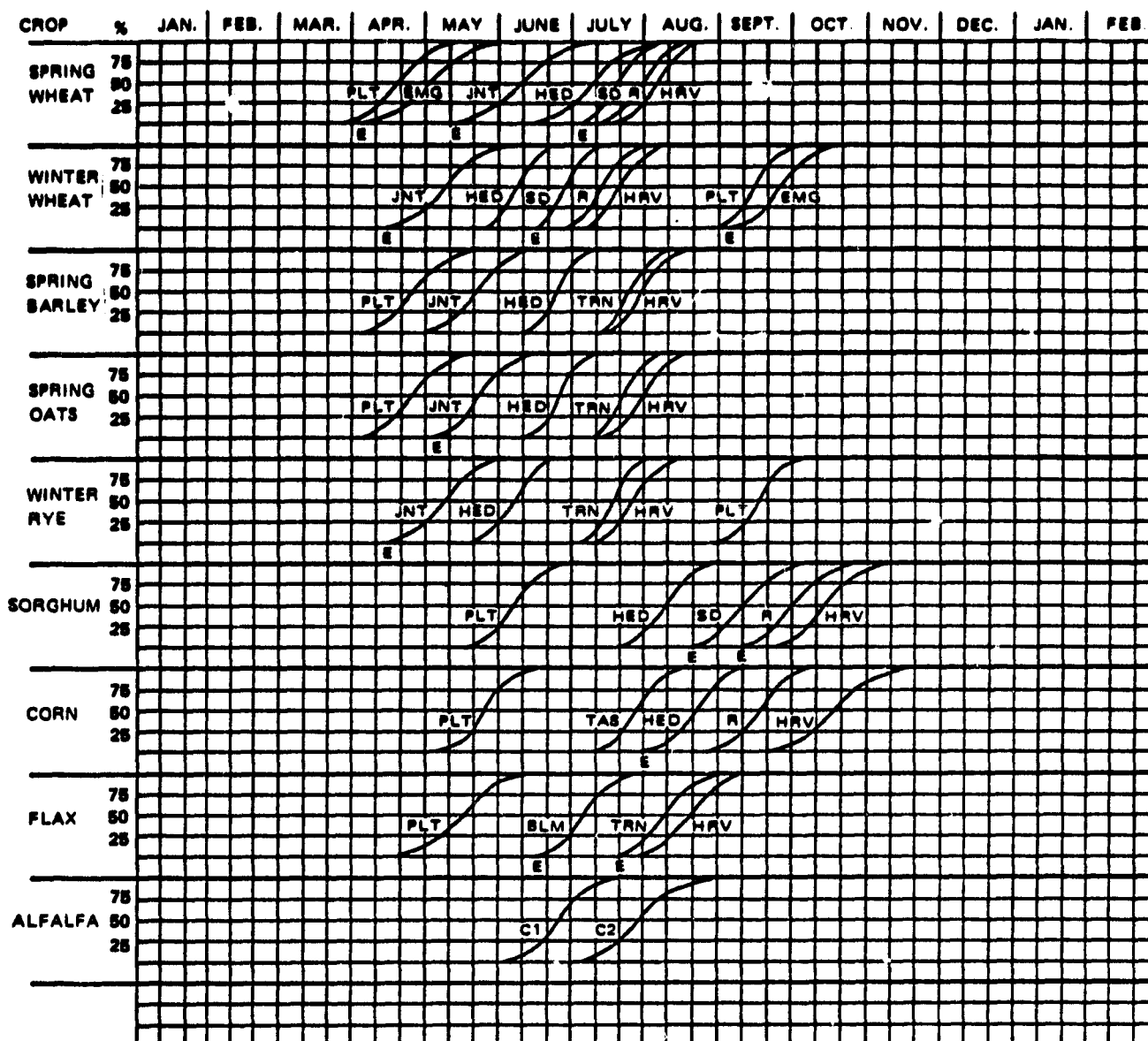
LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering



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CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
SOUTH DAKOTA CRD 10 AVERAGE CROP CALENDARS FROM 1960 TO 1969

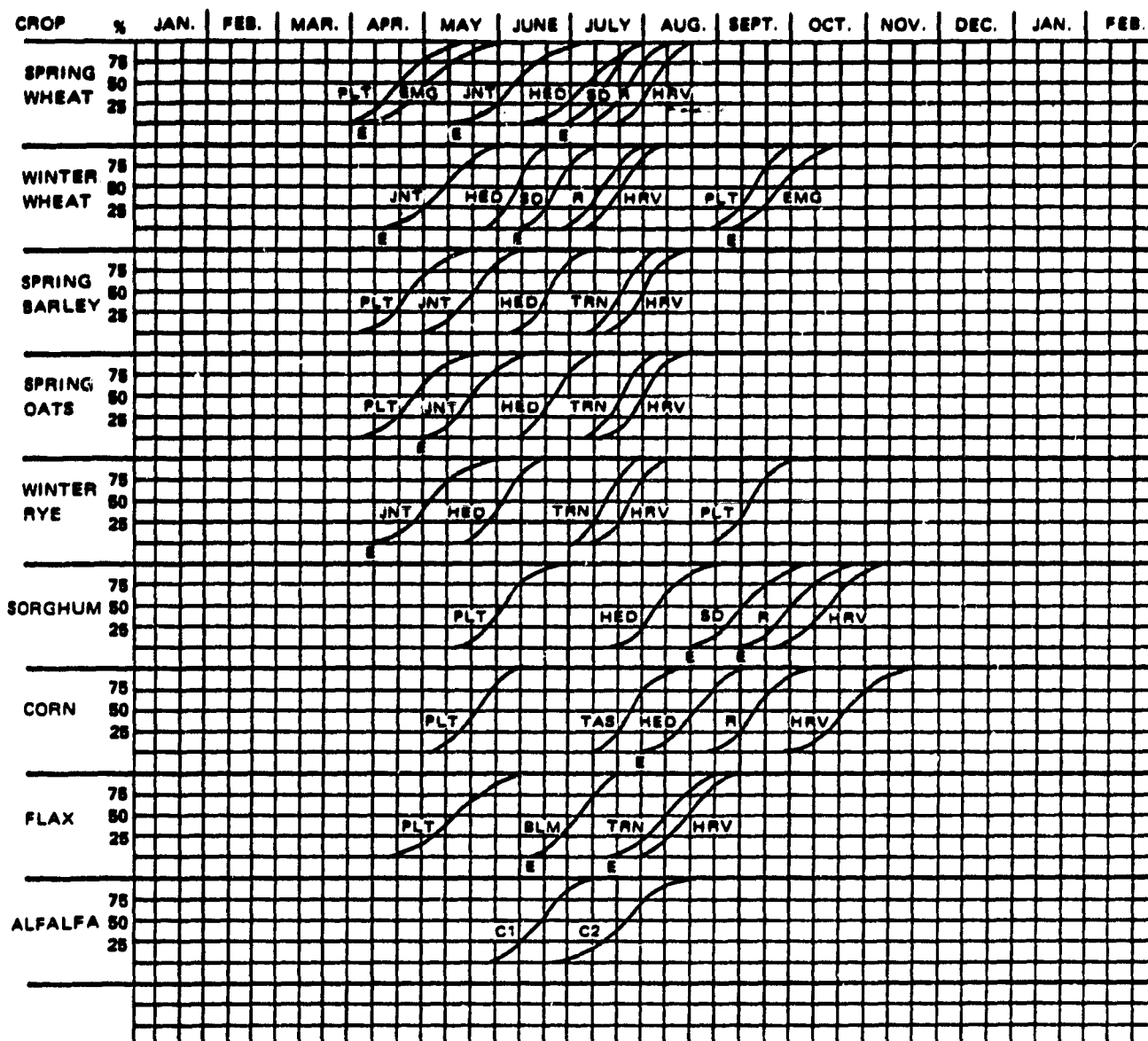


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 BLM Blooming  
 C Cut

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CROP CALENDARS PLOTTED 01/06/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
SOUTH DAKOTA CRD 20 AVERAGE CROP CALENDARS FROM 1960 TO 1969

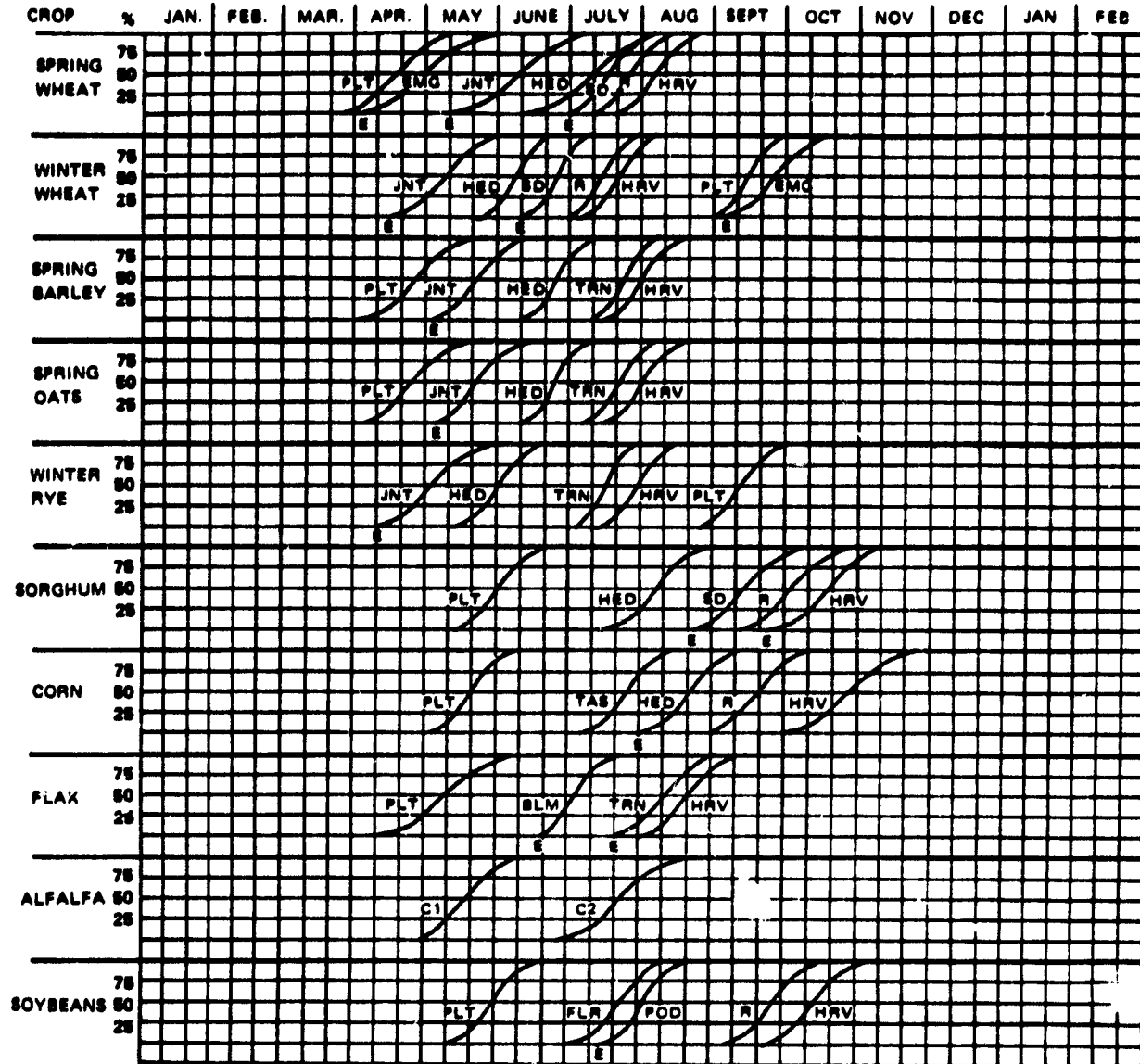


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
BLM Blooming  
C Cut

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CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
SOUTH DAKOTA CRD 30 AVERAGE CROP CALENDARS FROM 1960 TO 1969

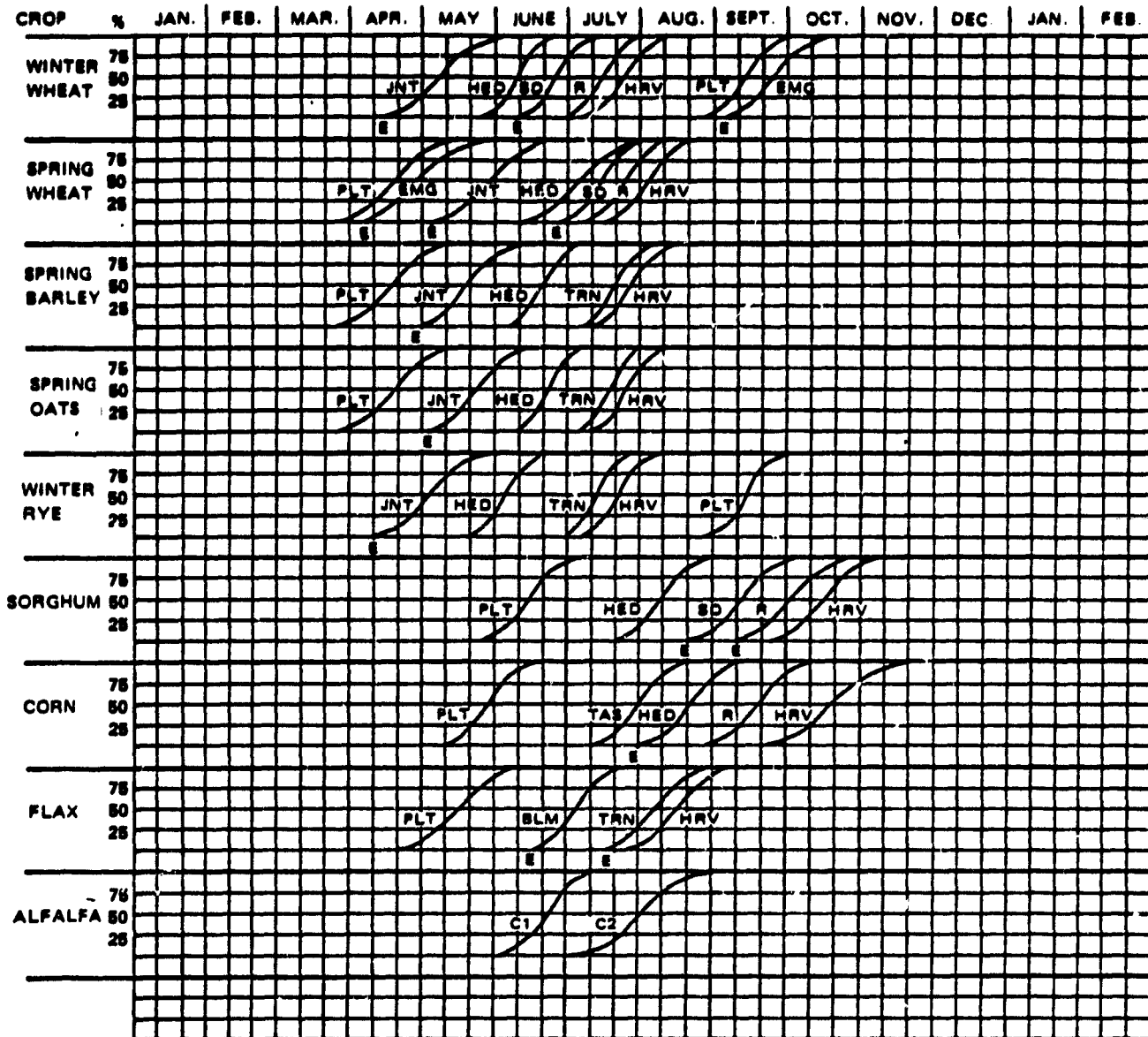


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
BLM Blooming  
C Cut  
FLR Flowering

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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
SOUTH DAKOTA CRD 40 AVERAGE CROP CALENDARS FROM 1960 TO 1969

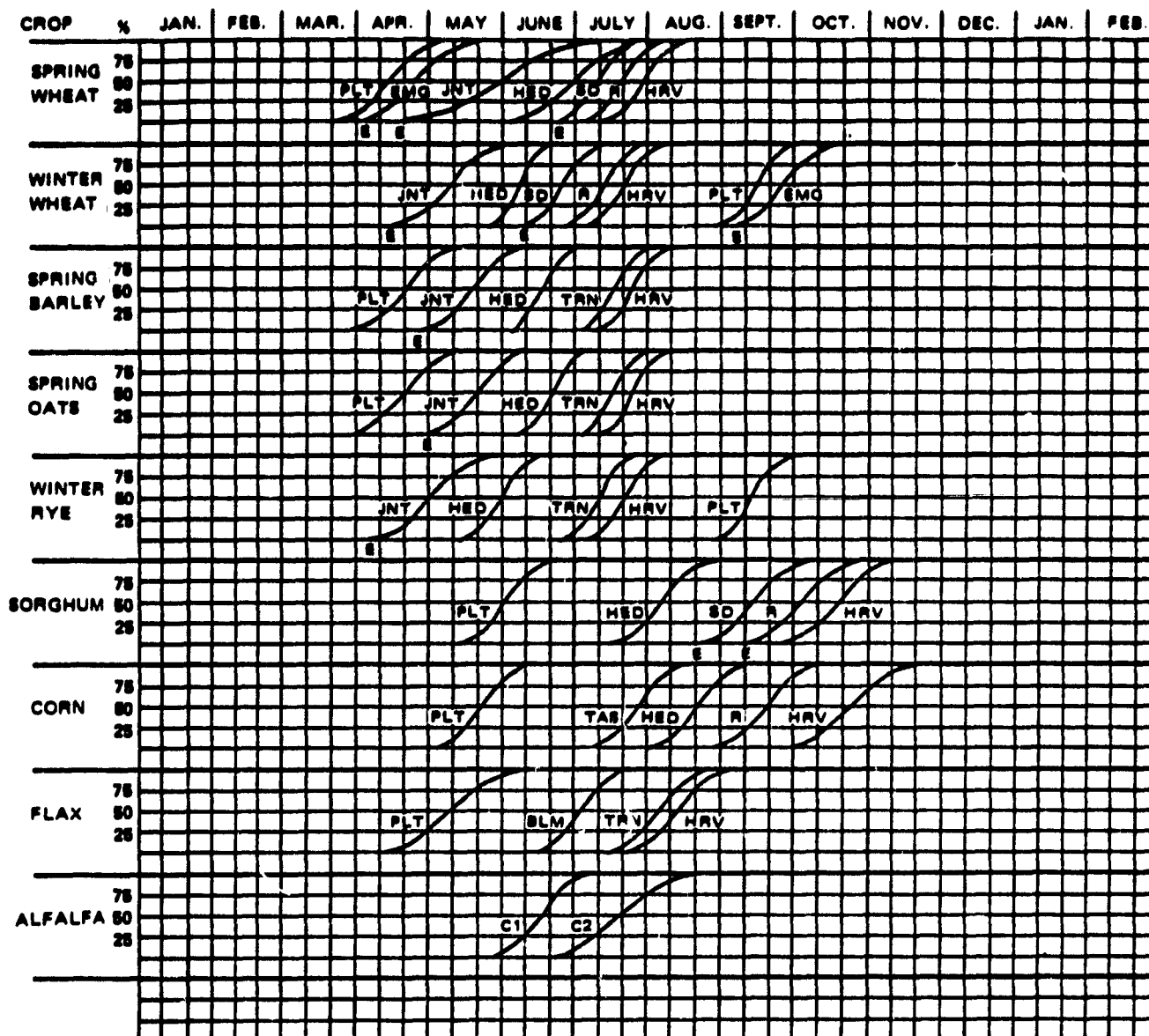


## LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tesseling  
C Cut  
BLM Blooming

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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
SOUTH DAKOTA CRD 50 AVERAGE CROP CALENDARS FROM 1960 TO 1969

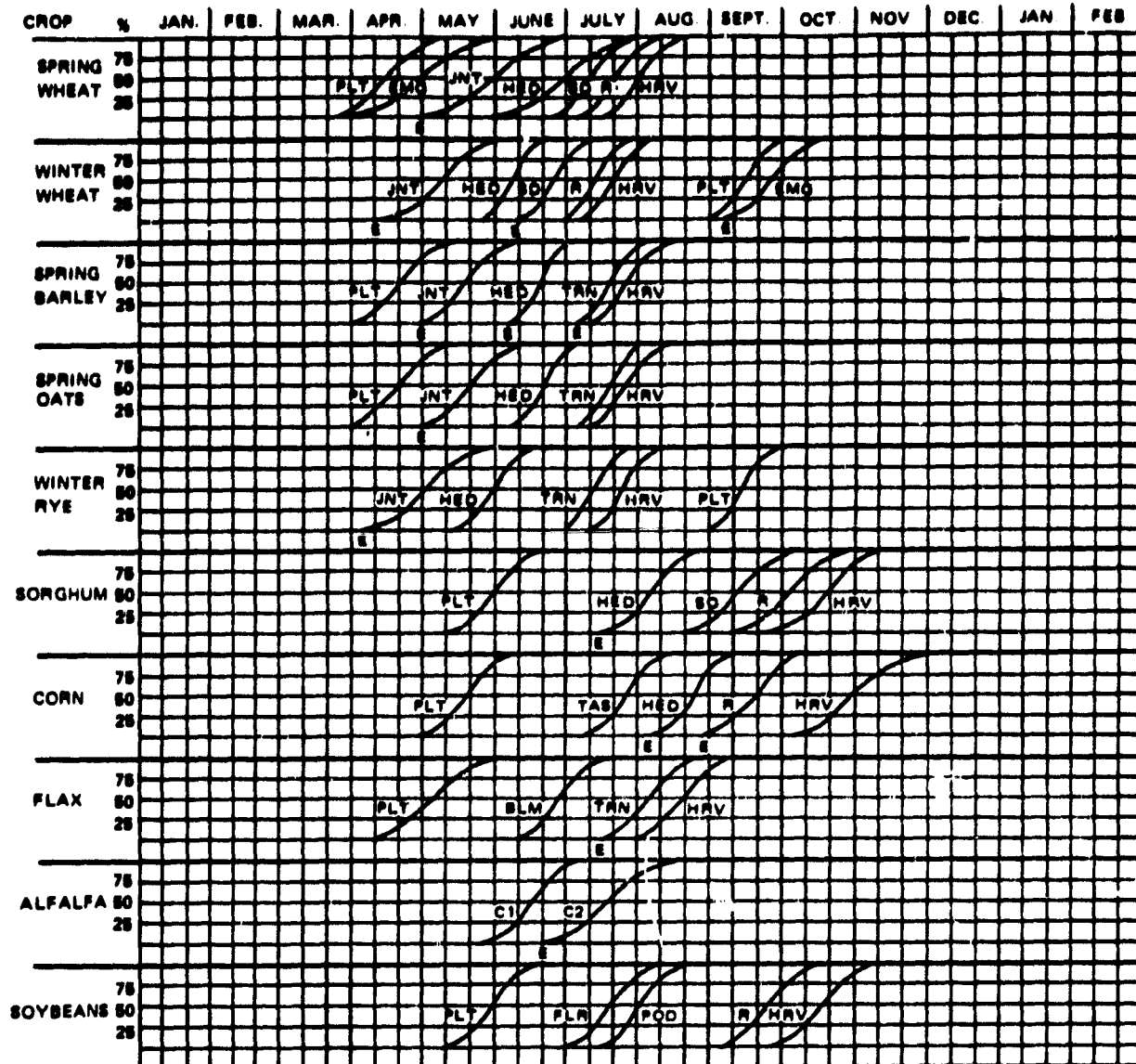


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 BLM Blooming  
 C Cut

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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
SOUTH DAKOTA CRD 60 AVERAGE CROP CALENDARS FROM 1960 TO 1969

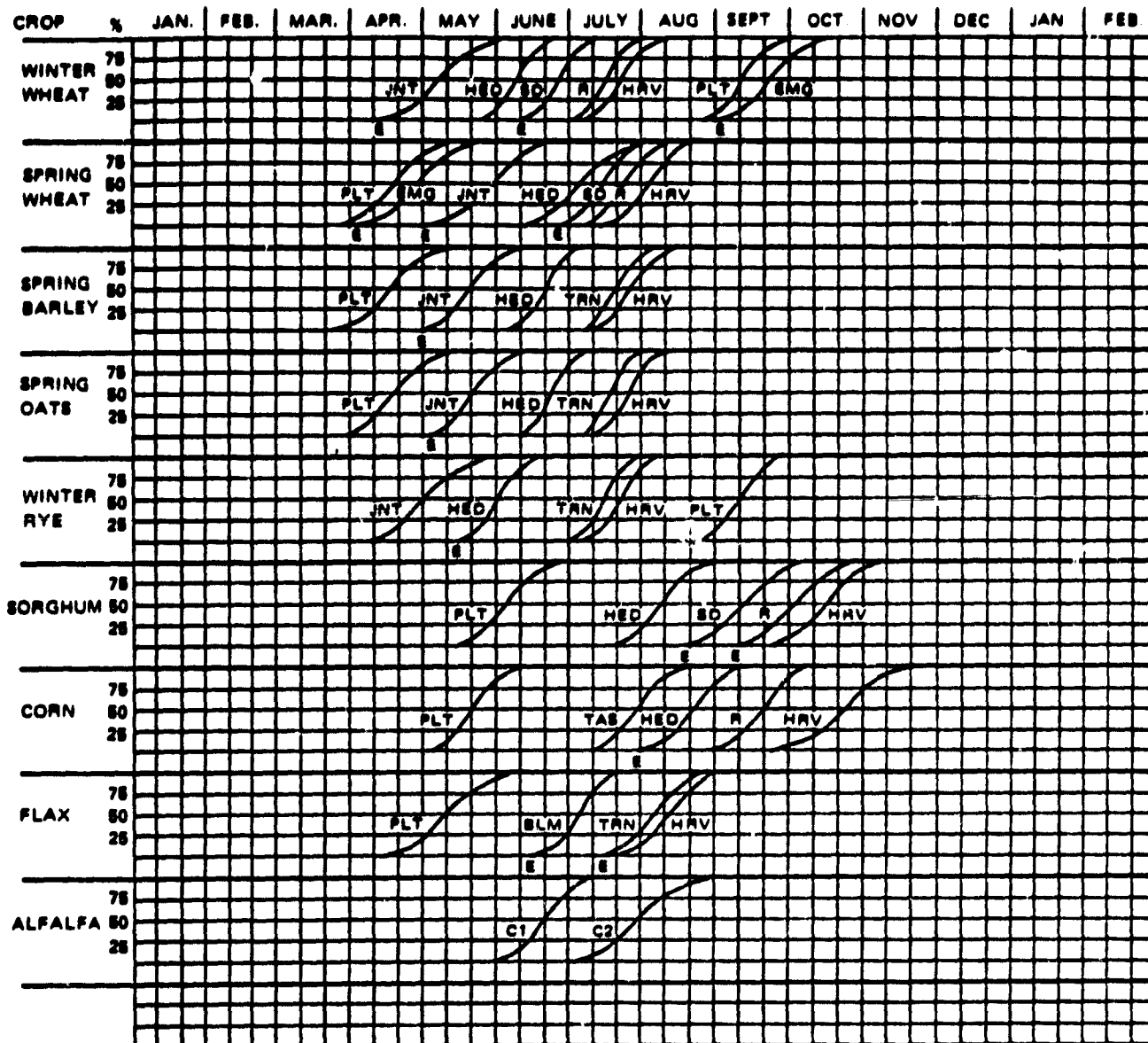


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering  
BLM Blooming

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CROP CALENDARS PLOTTED 01/06/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
SOUTH DAKOTA CRD 70 AVERAGE CROP CALENDARS FROM 1960 TO 1969

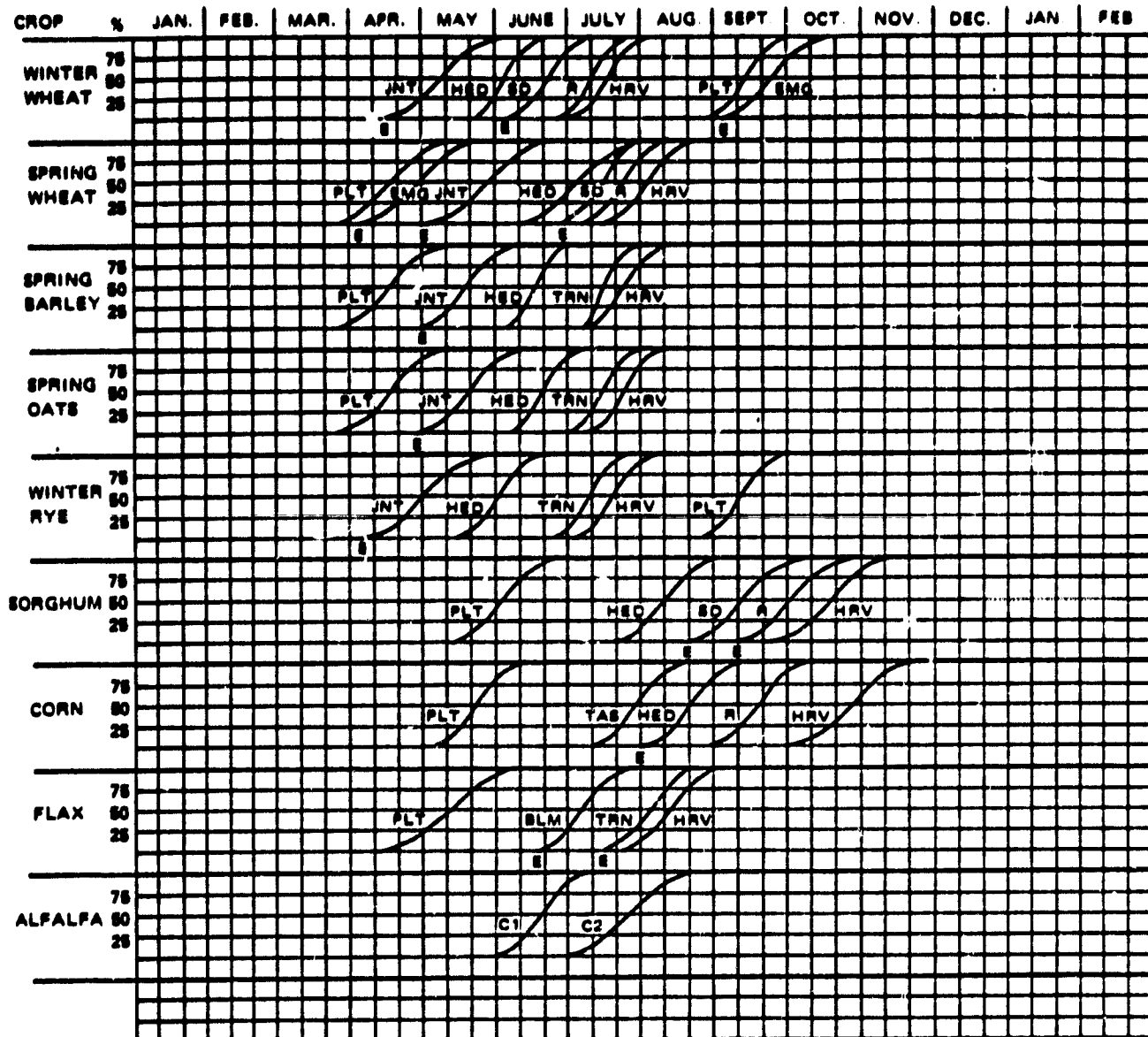


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 BLM Blooming  
 C Cut

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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
SOUTH DAKOTA CRO 80 AVERAGE CROP CALENDARS FROM 1960 TO 1969



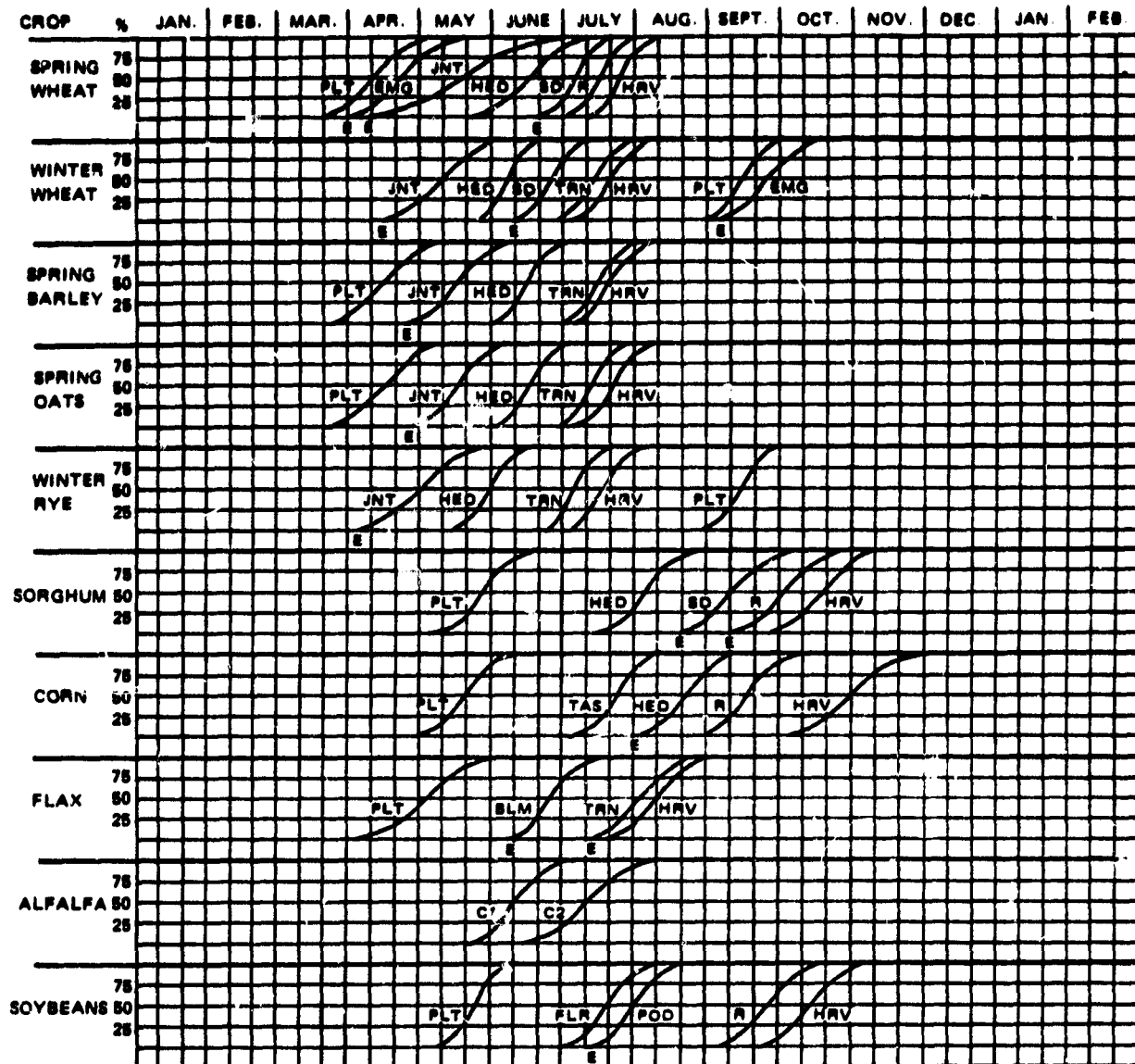
LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
BLM Blooming  
C Cut



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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
SOUTH DAKOTA CRD 90 AVERAGE CROP CALENDARS FROM 1960 TO 1969

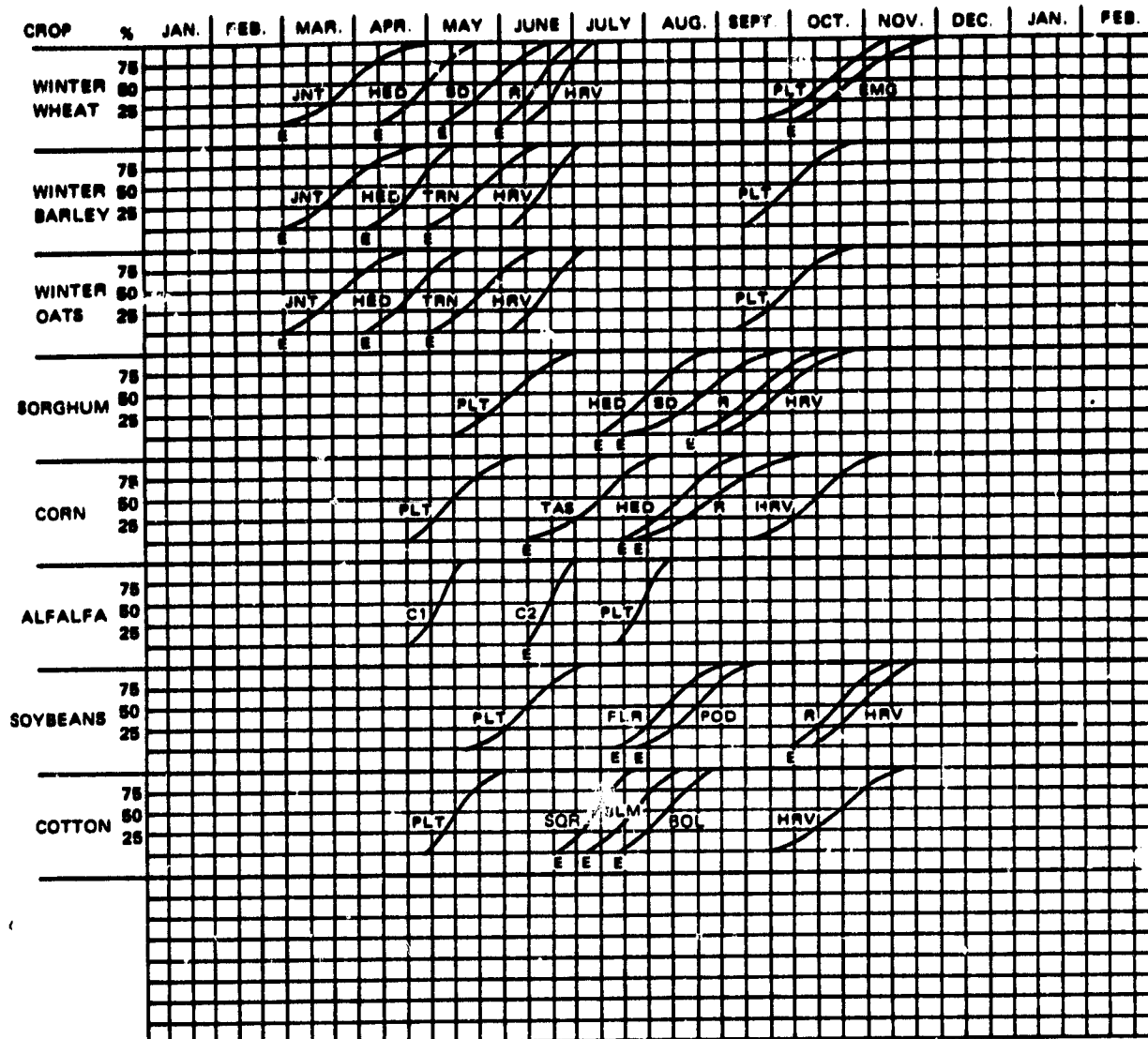


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
BLM Blooming  
C Cut  
FLR Flowering

ORIGINAL PAGE 75  
OF POOR QUALITY.

CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
TENNESSEE CRD 2 ESTIMATED AVERAGE CROP CALENDARS FROM USDA BULLETIN 283

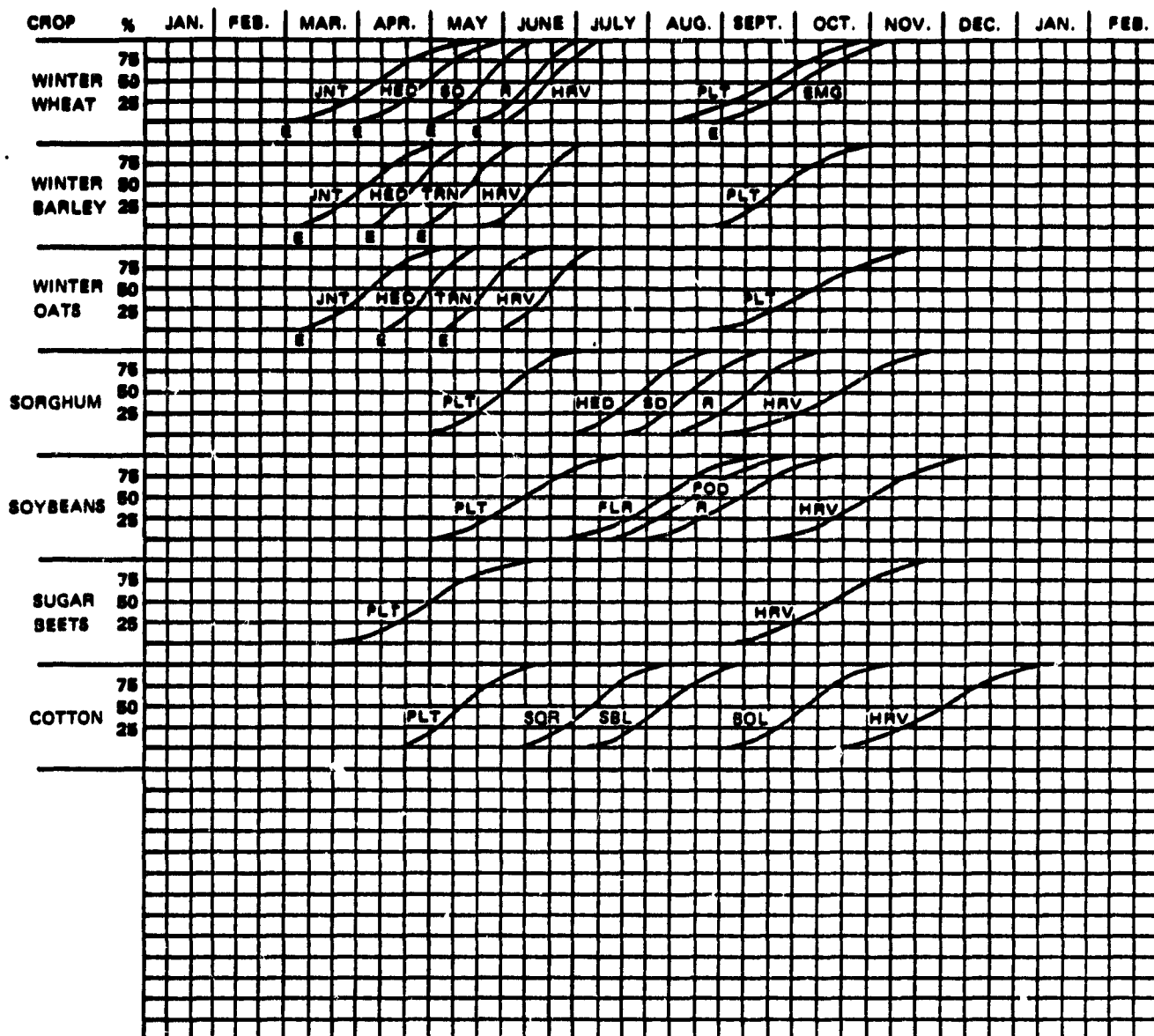


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SD Soft dough  
 TRN Turning  
 TAS Tasseling  
 C Cut  
 FLR Flowering  
 SQR Squaring  
 BLM Blooming  
 BOLL Bolling

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/06/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
TEXAS CRD 1 AVERAGE CROP CALENDARS FOR 1964-66 AND 1971-73

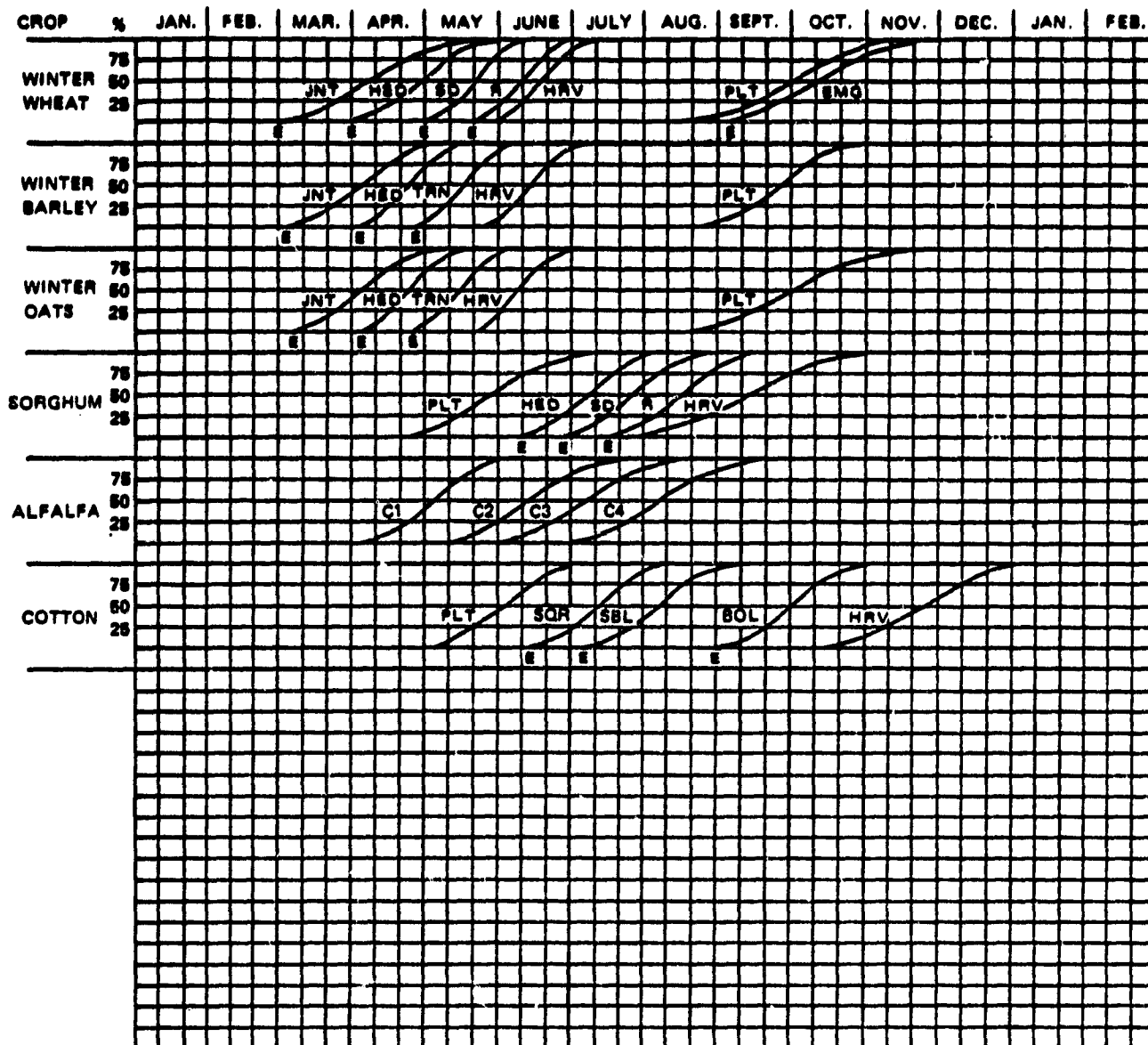


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
SQR Squaring  
SBL Soft boll  
BOL Bolling

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
TEXAS CRO 2 AVERAGE CROP CALENDARS FOR 1964-66 AND 1971-73

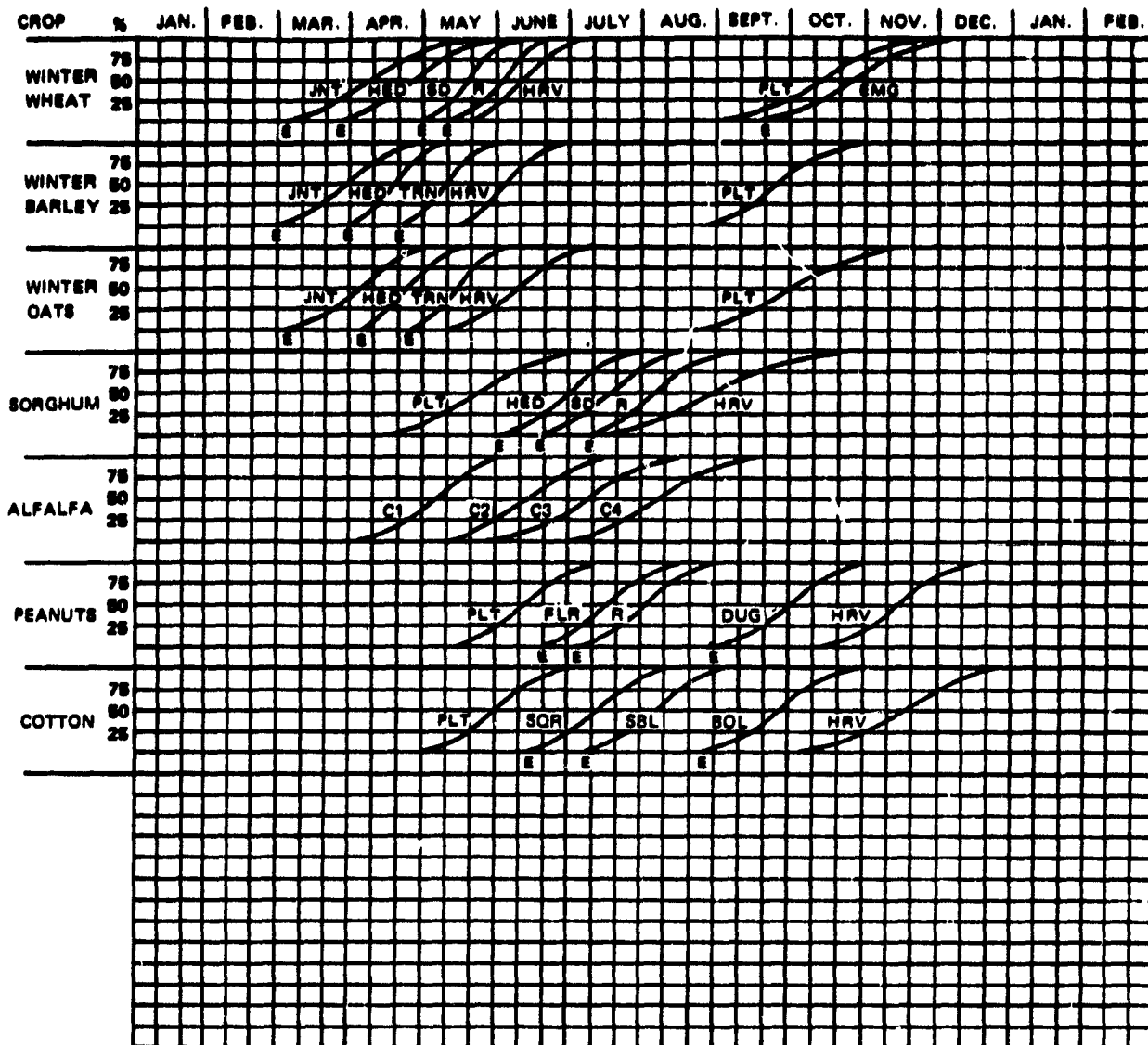


LEGEND

E Under stage name, indicates rough estimate of date  
 EMG Emergence  
 HED Heading  
 HRV Harvest  
 JNT Jointing  
 PLT Planting  
 R Ripe  
 SO Soft dough  
 TRN Turning  
 C Cut  
 SQR Squaring  
 SBL Soft boll  
 BOL Bolting

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
TEXAS CRD 3 AVERAGE CROP CALENDARS FOR 1964-66 AND 1971-73

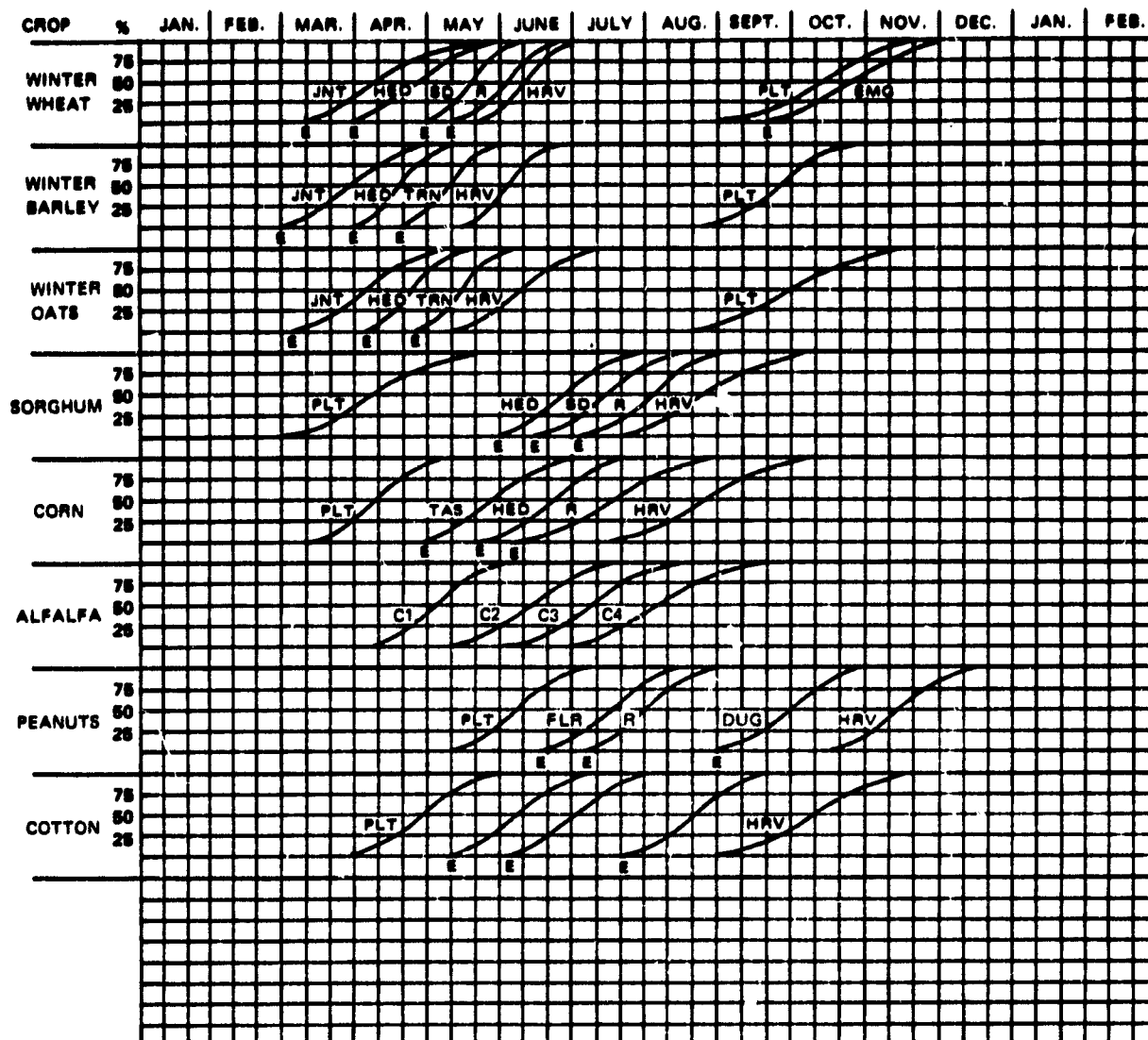


LEGEND

E	Under stage name, indicates rough estimate of date
EMG	Emergence
HED	Heading
HRV	Harvest
JNT	Jointing
PLT	Planting
R	Ripe
SD	Soft dough
TRN	Turning
C	CUT
FLR	Flowering
SQR	Squaring
SBL	Soft boll
BOL	Bolling

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/08/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
TEXAS CRD 4 AVERAGE CROP CALENDARS FOR 1964-66 AND 1971-73

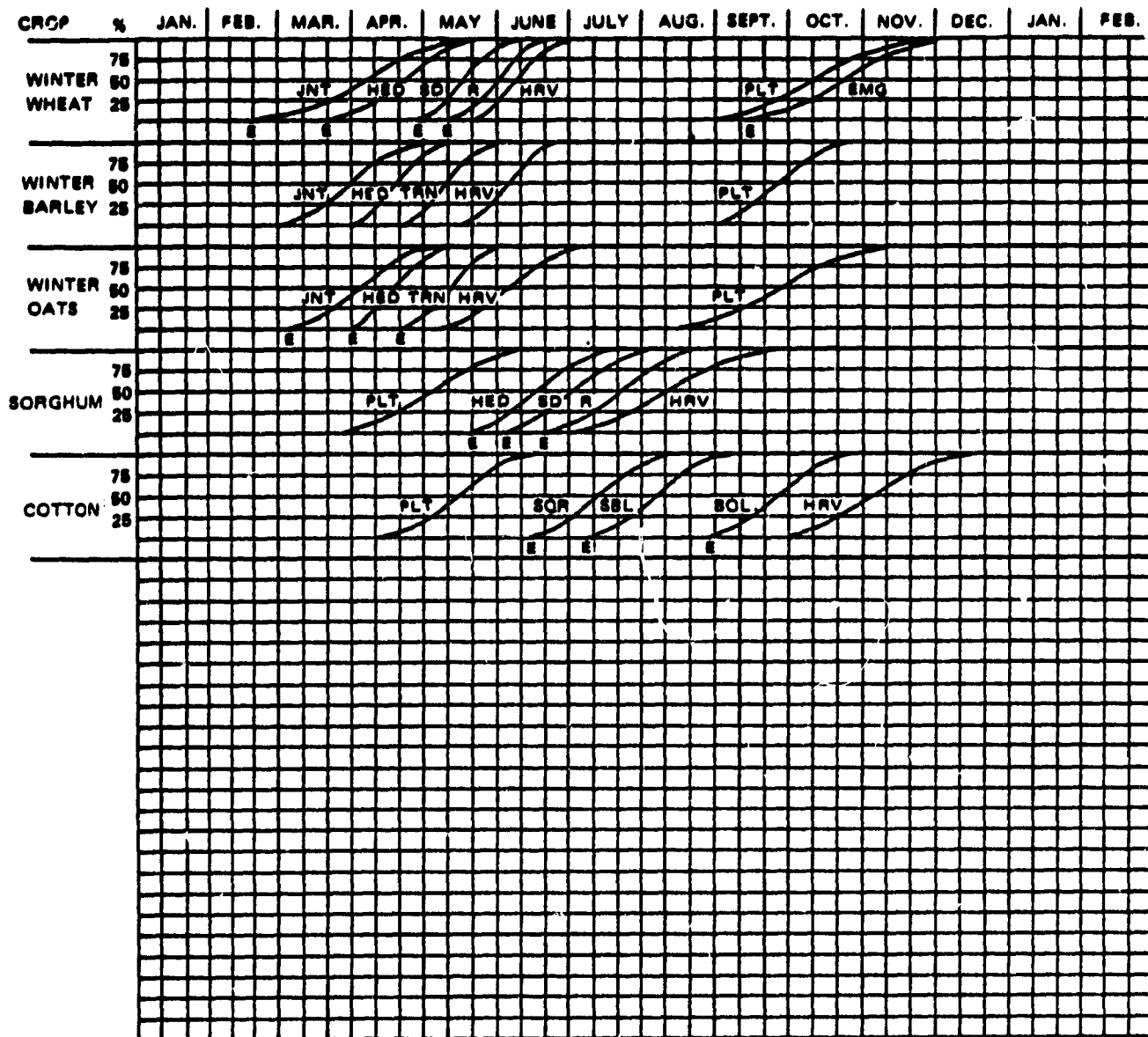


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering  
SQR Squaring  
SBL Soft boll  
BOL Bolling

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/06/76  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
TEXAS CRD 7 AVERAGE CROP CALENDARS FOR 1964-66 AND 1971-73

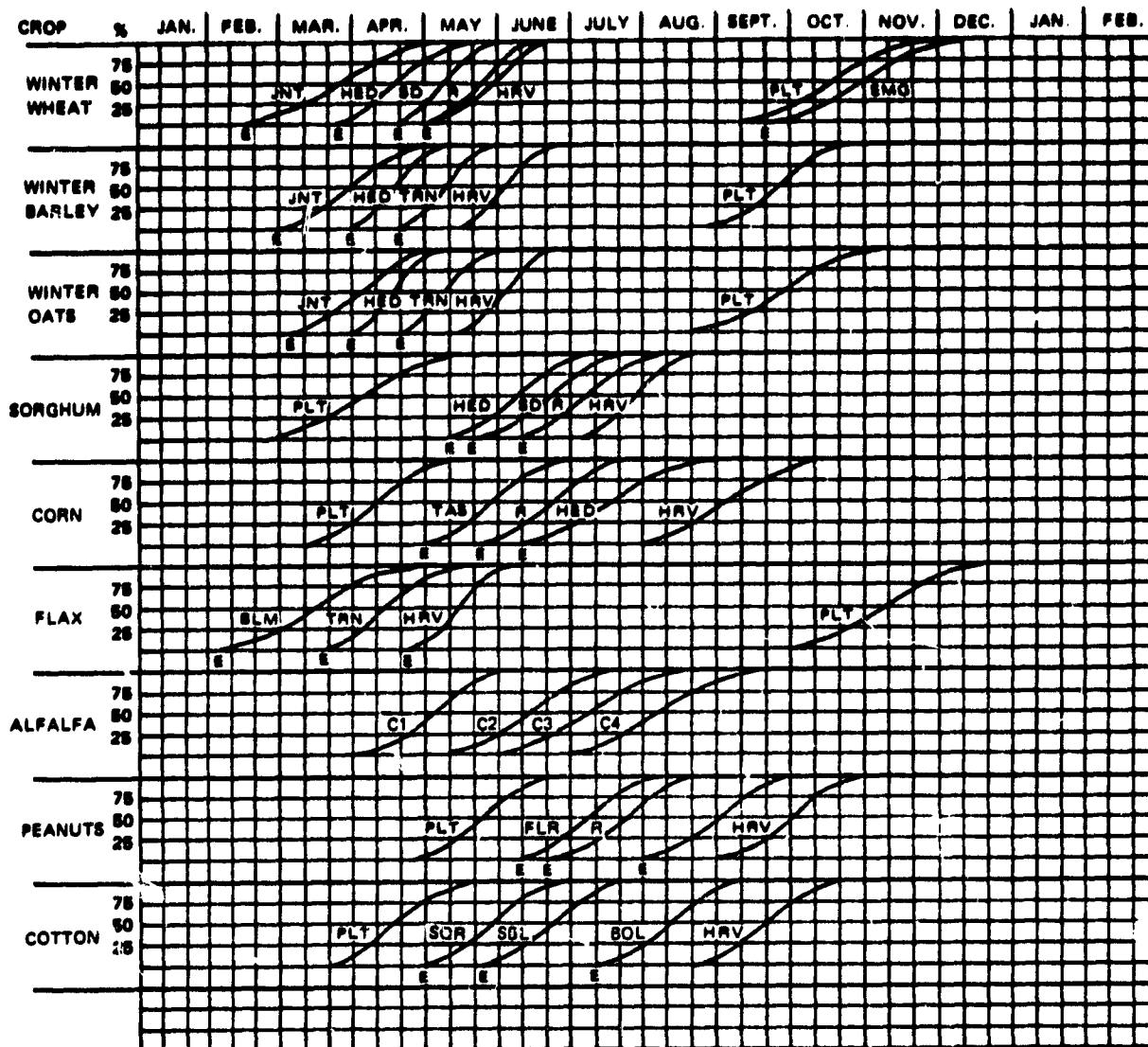


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
SQR Squaring  
SBL Soft bolling  
BOL Bolling

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CROP CALENDARS PLOTTED 01/06/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
TEXAS CROPS AVERAGE CROP CALENDARS FOR 1964-66 AND 1971-73



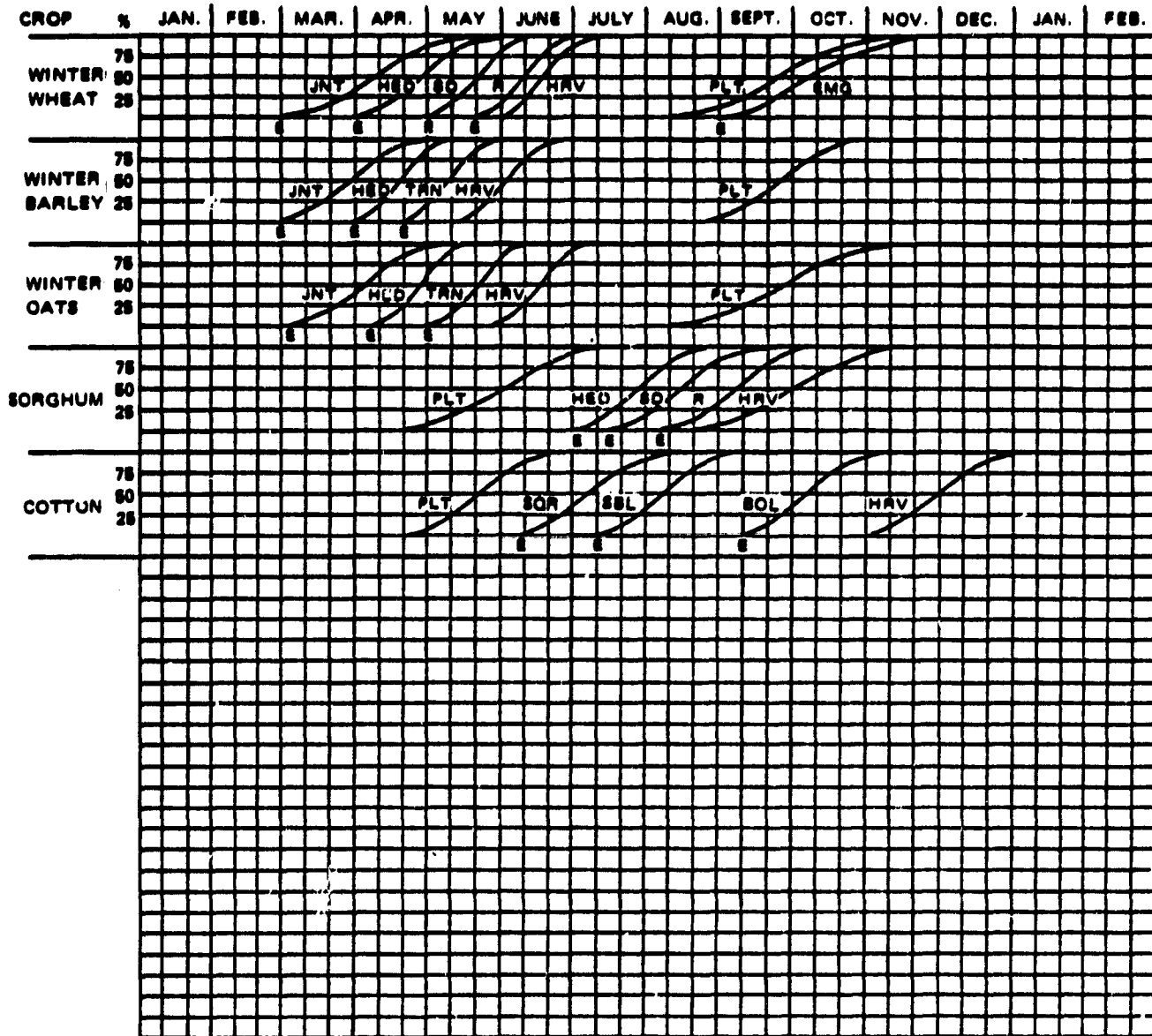
LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
BLM Blooming  
C Cut  
FLR Flowering  
SQR Squaring  
SBL Soft boll  
BOL Bolling



ORIGINAL PAGE 15  
OF POOR QUALITY

CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
TEXAS CRD 11 AVERAGE CROP CALENDARS FOR 1964-66 AND 1971-73

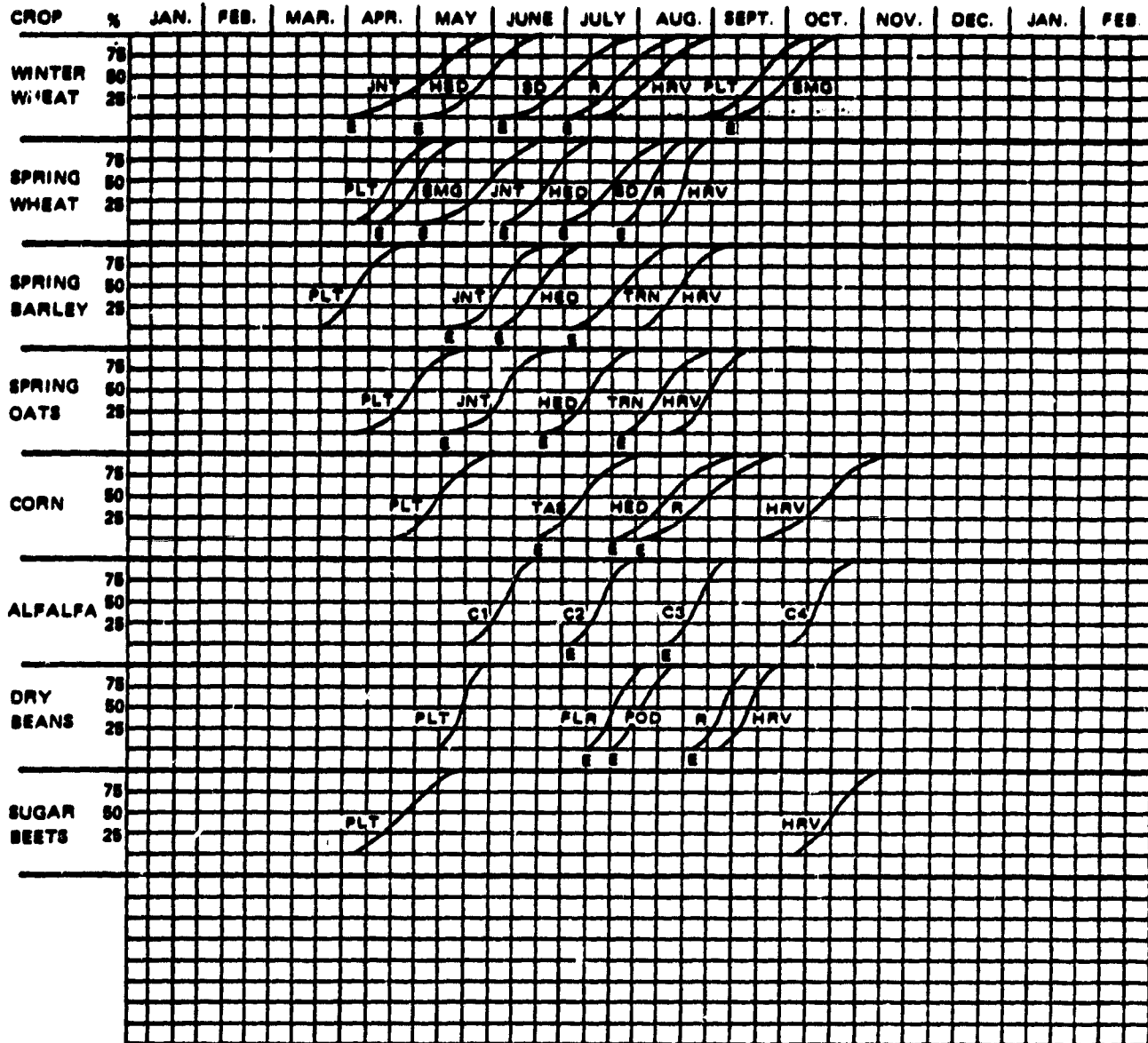


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HARV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
SQR Squaring  
SBL Soft bolling  
SOL Bolling

ORIGINAL PAGE IS  
OF POOR QUALITY

CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
UTAH CRD 1 ESTIMATED AVERAGE CROP CALENDARS FROM USDA BULLETIN 283

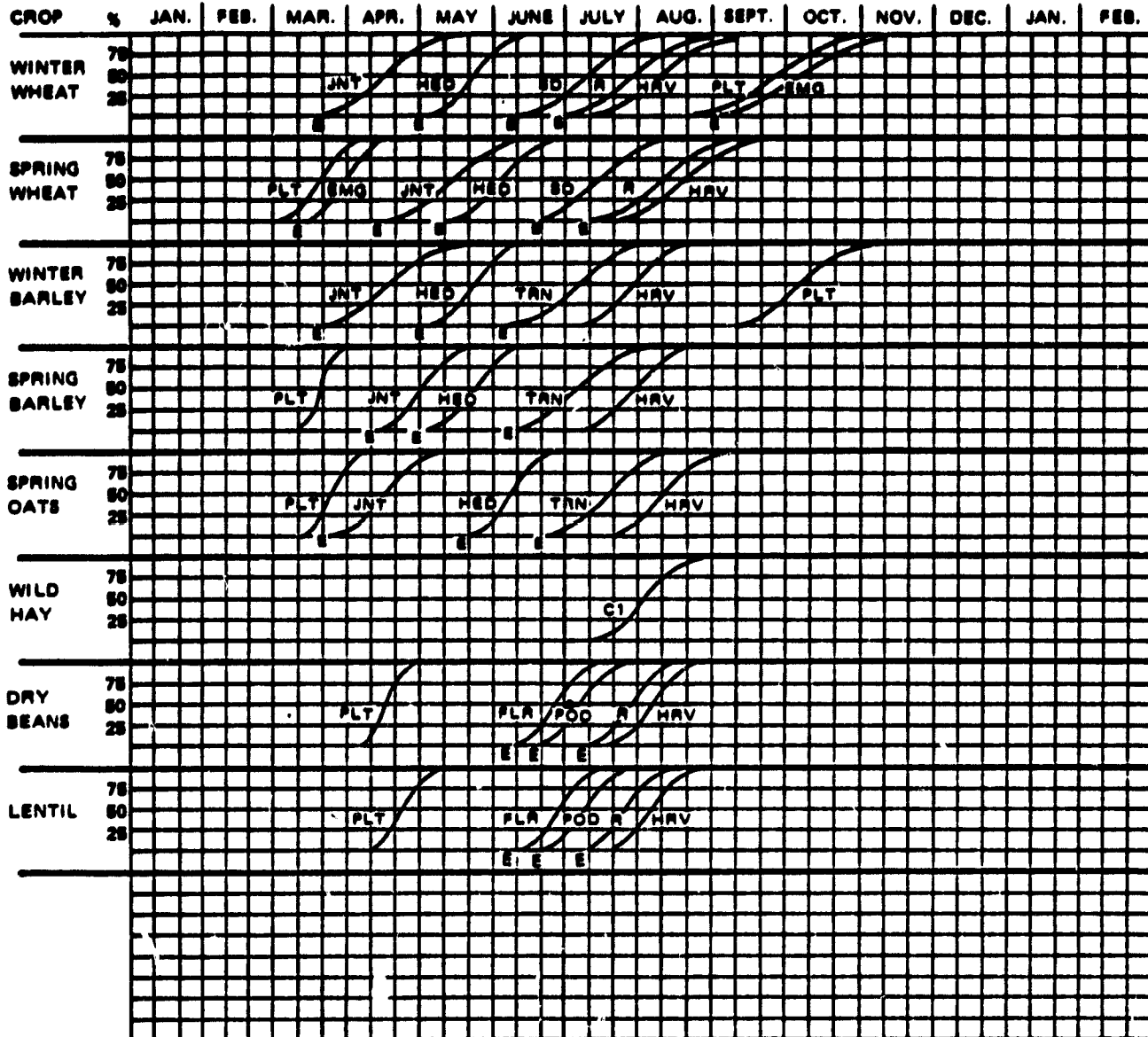


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling  
C Cut  
FLR Flowering

ORIGINAL PAGE IS  
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CROP CALENDARS PLCTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
WASHINGTON CRD 3 ESTIMATED AVERAGE CROP CALENDARS FROM USDA BULLETIN 283

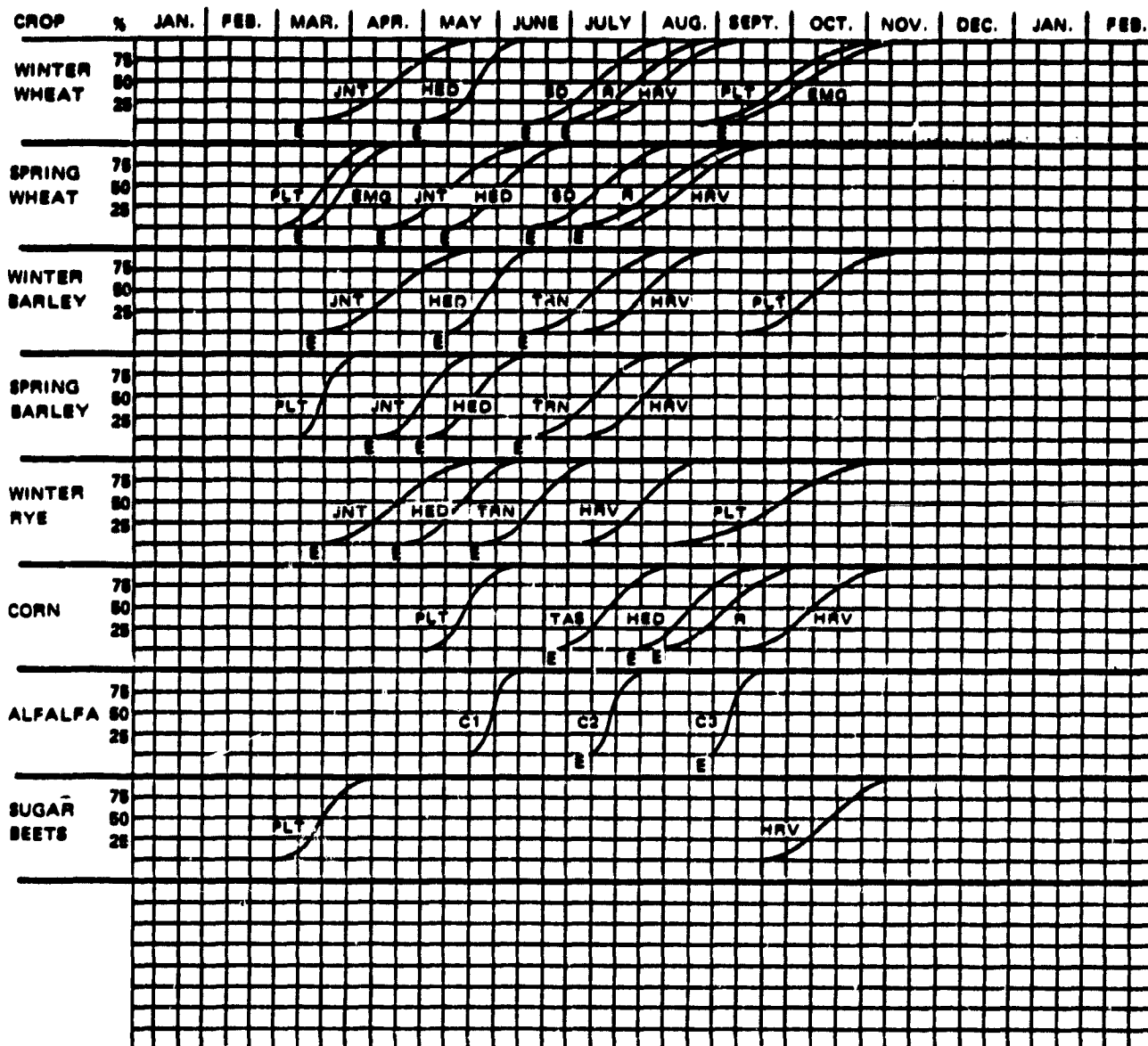


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning

ORIGINAL PAGE IS  
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CROP CALENDARS PLOTTED 01/06/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
WASHINGTON CRO 5 ESTIMATED AVERAGE CROP CALENDARS FROM USDA BULLETIN 203

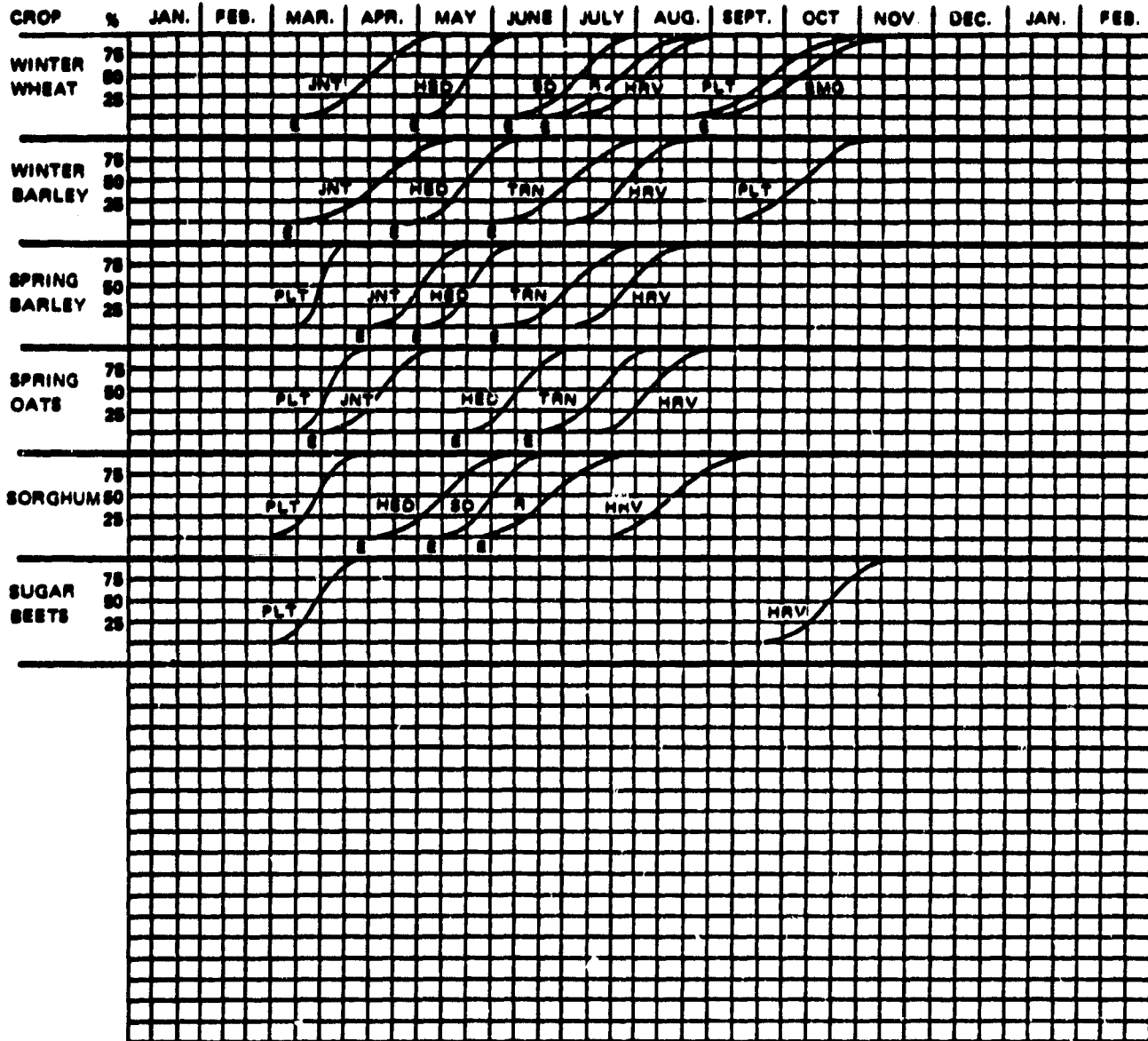


LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning  
TAS Tasseling

ORIGINAL PAGE IS  
OF POOR QUALITY

CROP CALENDARS PLOTTED 01/08/78  
PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
WASHINGTON CRD 9 ESTIMATED AVERAGE CROP CALENDARS FROM USDA BULLETIN 283



LEGEND

E Under stage name, indicates rough estimate of date  
EMG Emergence  
HED Heading  
HRV Harvest  
JNT Jointing  
PLT Planting  
R Ripe  
SD Soft dough  
TRN Turning

**APPENDIX B**

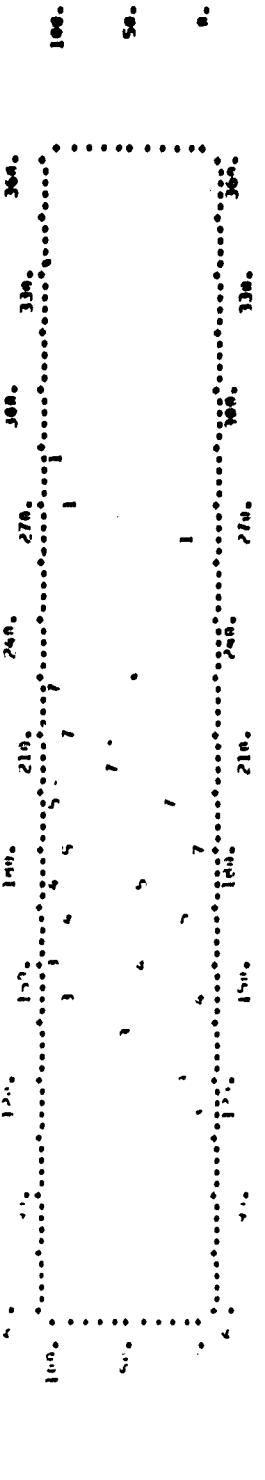
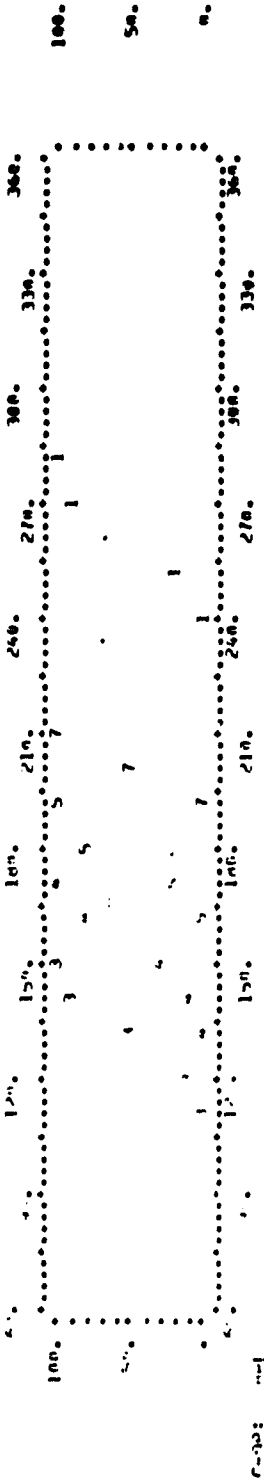
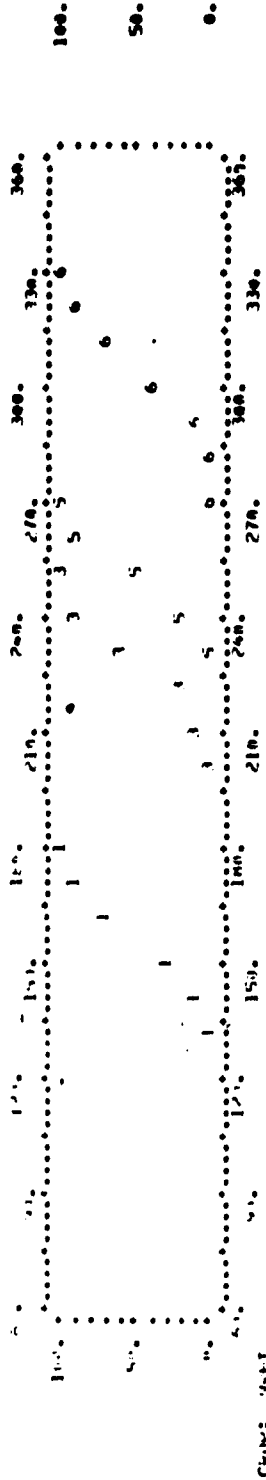
**SAMPLES OF CROP CALENDARS FOR COLORADO, IOWA, KANSAS, MINNESOTA, MONTANA,  
NEBRASKA, NORTH DAKOTA, SOUTH DAKOTA, AND TEXAS**

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PAGE 1

UNITED STATES DEPARTMENT OF AGRICULTURE

(Date: 5/20/56)



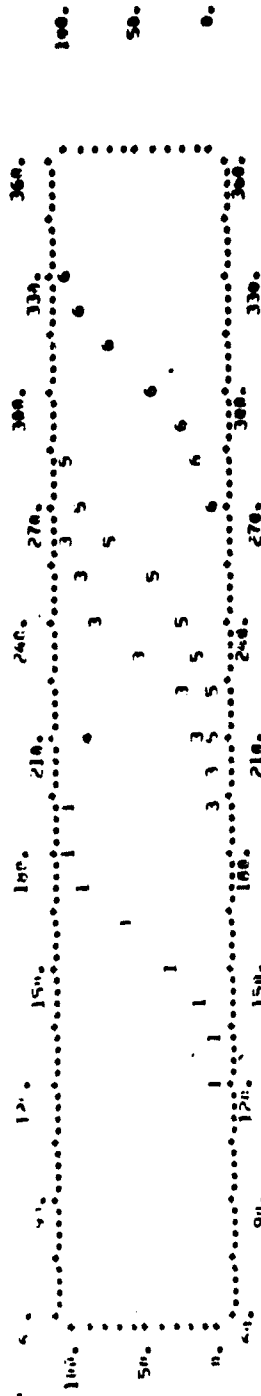
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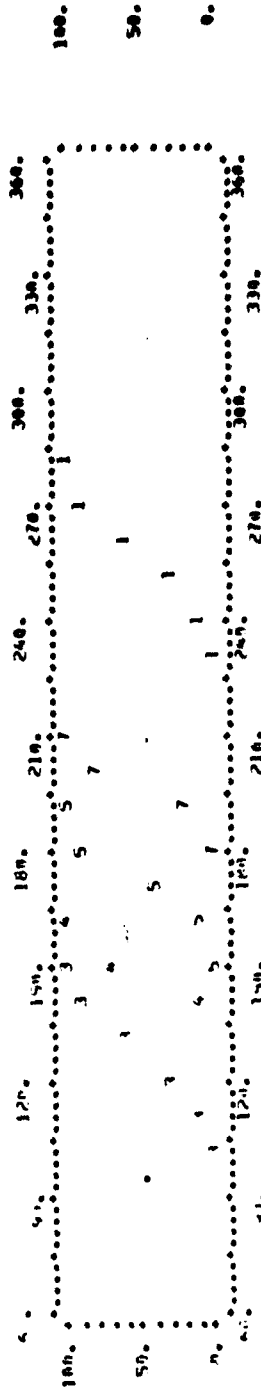
PAGE 1

AGRICULTURAL PLOTS FOR STATE TO CDD

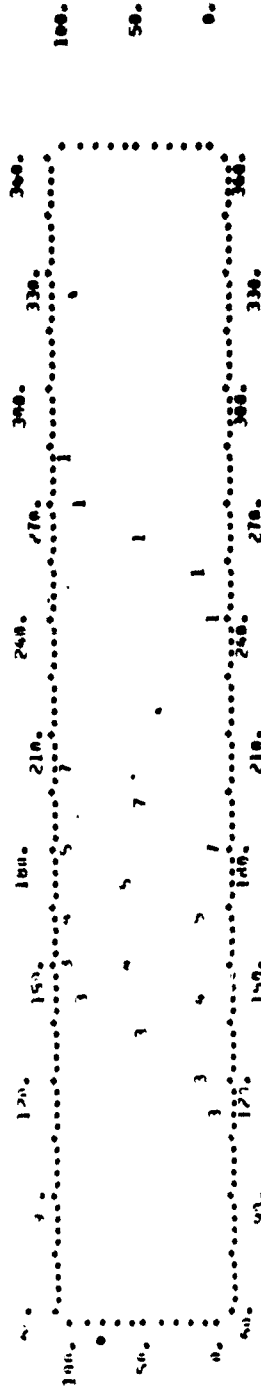
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0-100



0-100



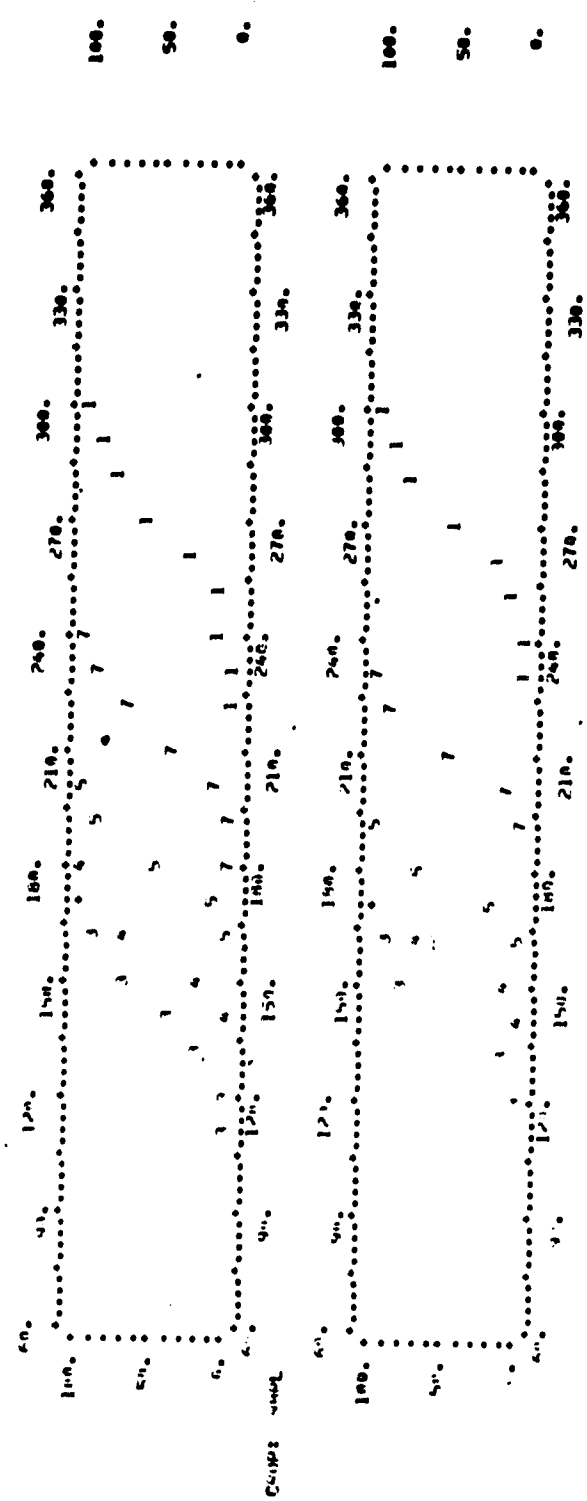


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PAGE 1

WIND SPEED CORRELATION DATA FOR STATION CO CODE 7

CHART: WIND

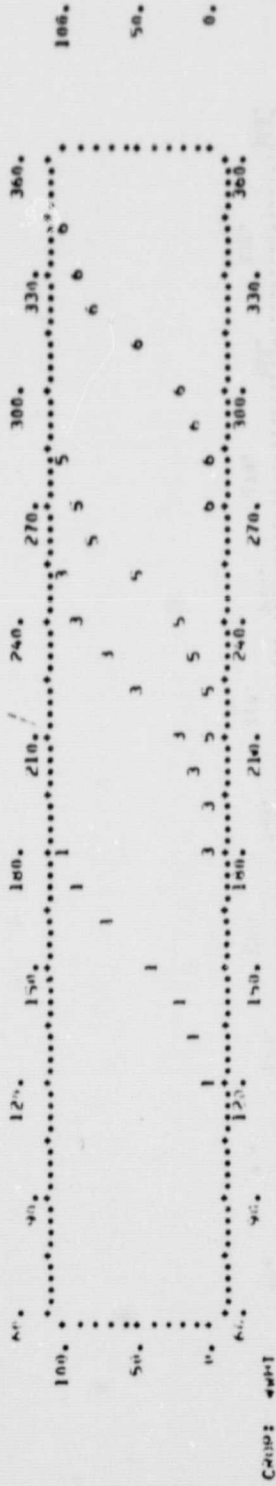


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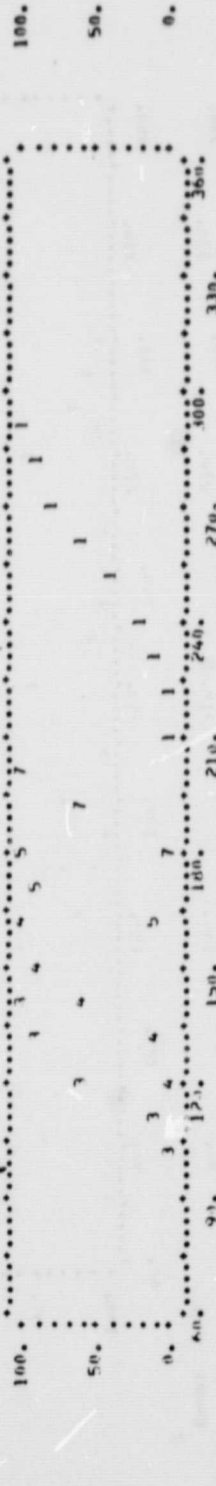
PAGE 1

ANNUAL CROP-CALFARM PLOTS FOR STATE: CO C40: 9

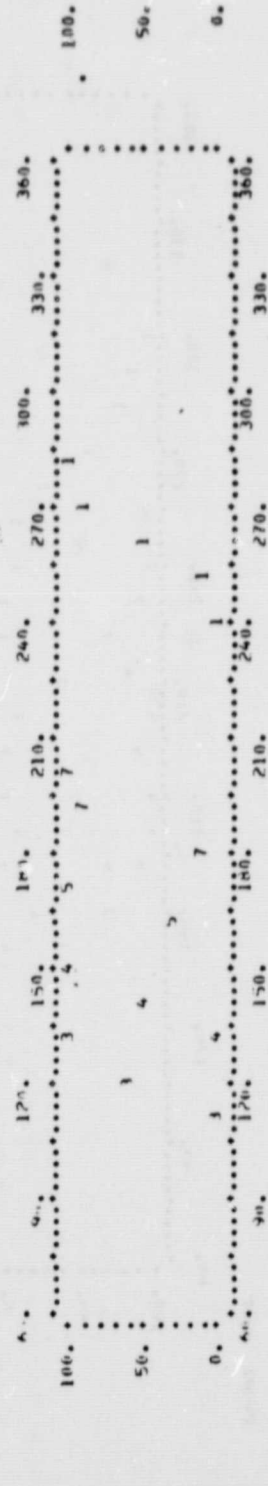
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Crop: 4001



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APPENDIX C

SAMPLE OF STATISTICAL TREATMENT OF CROP CALENDAR DATA FOR STATES WITH  
WEEKLY DATA: IOWA, KANSAS, MINNOSATA, MONTANA, NEBRASKA,  
NORTH DAKOTA, SOUTH DAKOTA, AND TEXAS

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STATE	CRD	CROP	STAGE	YEAR	LOGISTIC CURVE	90%
A	2	1	1	66	10 %	129.
A	2	1	1	67	11 %	125.
A	2	1	1	68	11 %	129.
A	2	1	1	69	11 %	129.
A	2	1	1	70	11 %	129.
A	2	1	1	71	11 %	129.
A	2	1	1	72	11 %	129.
A	2	1	1	73	11 %	129.
A	2	1	1	74	11 %	129.
A	2	1	1	75	11 %	129.
STATE	CRD	CROP	STAGE	YEAR	LOGISTIC CURVE	90%
A	2	1	1	66	10 %	129.
A	2	1	1	67	11 %	125.
A	2	1	1	68	11 %	129.
A	2	1	1	69	11 %	129.
A	2	1	1	70	11 %	129.
A	2	1	1	71	11 %	129.
A	2	1	1	72	11 %	129.
A	2	1	1	73	11 %	129.
A	2	1	1	74	11 %	129.
A	2	1	1	75	11 %	129.
STATE	CRD	CROP	STAGE	YEAR	LOGISTIC CURVE	90%
A	2	1	1	66	10 %	129.
A	2	1	1	67	11 %	125.
A	2	1	1	68	11 %	129.
A	2	1	1	69	11 %	129.
A	2	1	1	70	11 %	129.
A	2	1	1	71	11 %	129.
A	2	1	1	72	11 %	129.
A	2	1	1	73	11 %	129.
A	2	1	1	74	11 %	129.
A	2	1	1	75	11 %	129.
STATE	CRD	CROP	STAGE	YEAR	LOGISTIC CURVE	90%
A	2	1	1	66	10 %	129.
A	2	1	1	67	11 %	125.
A	2	1	1	68	11 %	129.
A	2	1	1	69	11 %	129.
A	2	1	1	70	11 %	129.
A	2	1	1	71	11 %	129.
A	2	1	1	72	11 %	129.
A	2	1	1	73	11 %	129.
A	2	1	1	74	11 %	129.
A	2	1	1	75	11 %	129.
STATE	CRD	CROP	STAGE	YEAR	LOGISTIC CURVE	90%
A	2	1	1	66	10 %	129.
A	2	1	1	67	11 %	125.
A	2	1	1	68	11 %	129.
A	2	1	1	69	11 %	129.
A	2	1	1	70	11 %	129.
A	2	1	1	71	11 %	129.
A	2	1	1	72	11 %	129.
A	2	1	1	73	11 %	129.
A	2	1	1	74	11 %	129.
A	2	1	1	75	11 %	129.
STATE	CRD	CROP	STAGE	YEAR	LOGISTIC CURVE	90%
A	2	1	1	66	10 %	129.
A	2	1	1	67	11 %	125.
A	2	1	1	68	11 %	129.
A	2	1	1	69	11 %	129.
A	2	1	1	70	11 %	129.
A	2	1	1	71	11 %	129.
A	2	1	1	72	11 %	129.
A	2	1	1	73	11 %	129.
A	2	1	1	74	11 %	129.
A	2	1	1	75	11 %	129.

Colorado

APPENDIX D

FIFTY-PERCENT DATES FOR STAGES FOR ARKANSAS,  
IOWA, KENTUCKY, LOUISIANA, MICHIGAN, MISSISSIPPI,  
OHIO, AND WISCONSIN

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CROP	STAGE	STATE	CRD	MEAN	STD DEV
W	1.0	5		158.	10.4
W	1.0	5	2	158.	16.7
W	1.0	5	3	158.	9.6
W	1.0	5	4	154.	5.9
W	1.0	5	5	158.	7.6
W	1.0	5	6	159.	14.3
W	1.0	5	7	151.	16.9
W	1.0	5	8	154.	3.6
W	1.0	5	9	159.	9.6
W	1.0	5	10	158.	6.4

CROP	STAGE	STATE	CRD	MEAN	STD DEV
W	7.0	5		312.	9.2
W	7.0	5	2	312.	14.3
W	7.0	5	3	312.	10.0
W	7.0	5	4	316.	11.2
W	7.0	5	5	312.	8.3
W	7.0	5	6	311.	7.1
W	7.0	5	7	313.	10.5
W	7.0	5	8	309.	7.7
W	7.0	5	9	313.	7.8
W	7.0	5	10	312.	7.8

CROP	STAGE	STATE	CRD	MEAN	STD DEV
4	1.0	5		133.	16.7
4	1.0	5	2	154.	9.3
4	1.0	5	3	123.	5.7
4	1.0	5	4	121.	6.2
4	1.0	5	5	135.	23.6
4	1.0	5	6	124.	7.8
4	1.0	5	7	138.	15.0
4	1.0	5	8	137.	19.9
4	1.0	5	10	133.	8.1

CROP	STAGE	STATE	CRD	MEAN	STD DEV
4	6.0	5		275.	14.7
4	6.0	5	2	276.	20.4
4	6.0	5	3	270.	10.5
4	6.0	5	4	264.	8.4
4	6.0	5	5	281.	19.4
4	6.0	5	6	274.	12.4
4	6.0	5	7	271.	11.3
4	6.0	5	8	284.	15.8
4	6.0	5	10	275.	12.1

Arkansas



ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
B	1.0	S		297.	13.1
B	1.0	S	2	287.	15.9
B	1.0	S	3	301.	15.1
B	1.0	S	4	291.	9.2
B	1.0	S	5	304.	11.7
B	1.0	S	6	304.	14.4
B	1.0	S	7	290.	10.4
B	1.0	S	8	306.	16.8
B	1.0	S	9	297.	15.2
B	1.0	S	10	297.	9.9

CROP	STAGE	STATE	CRD	MEAN	STD DEV
B	7.0	S		177.	12.5
B	7.0	S	2	179.	11.2
B	7.0	S	3	181.	14.3
B	7.0	S	4	178.	11.9
B	7.0	S	5	176.	12.9
B	7.0	S	6	178.	11.9
B	7.0	S	7	176.	16.9
B	7.0	S	8	175.	17.4
B	7.0	S	9	174.	10.6
B	7.0	S	10	177.	13.2

CROP	STAGE	STATE	CRD	MEAN	STD DEV
Q	1.0	S		123.	7.2
Q	1.0	S	3	120.	3.3
Q	1.0	S	4	121.	6.2
Q	1.0	S	5	131.	5.4
Q	1.0	S	6	119.	4.2
Q	1.0	S	7	124.	6.0
Q	1.0	S	8	124.	9.0
Q	1.0	S	9	121.	10.1
Q	1.0	S	10	123.	3.0

CROP	STAGE	STATE	CRD	MEAN	STD DEV
Q	7.0	S		280.	5.7
Q	7.0	S	3	280.	5.5
Q	7.0	S	4	283.	5.1
Q	7.0	S	5	275.	5.1
Q	7.0	S	6	277.	6.4
Q	7.0	S	7	283.	8.3
Q	7.0	S	8	281.	4.9
Q	7.0	S	9	278.	4.3
Q	7.0	S	10	280.	4.5

Arkansas

ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
10	1.0	5		134.	7.6
10	1.0	5	3	133.	7.2
10	1.0	5	4	133.	7.7
10	1.0	5	5	137.	9.5
10	1.0	5	6	134.	9.4
10	1.0	5	7	137.	9.4
10	1.0	5	8	134.	7.3
10	1.0	5	9	134.	5.3
10	1.0	5	10	134.	6.5

CROP	STAGE	STATE	CRD	MEAN	STD DEV
10	4.0	5		210.	12.2
10	4.0	5	3	207.	16.0
10	4.0	5	4	211.	14.6
10	4.0	5	5	214.	15.9
10	4.0	5	6	208.	10.6
10	4.0	5	7	211.	10.6
10	4.0	5	8	211.	11.1
10	4.0	5	9	208.	12.0
10	4.0	5	10	210.	12.3

CROP	STAGE	STATE	CRD	MEAN	STD DEV
10	5.0	5		275.	11.8
10	5.0	5	3	271.	17.2
10	5.0	5	4	280.	11.9
10	5.0	5	5	270.	9.2
10	5.0	5	6	273.	12.5
10	5.0	5	7	280.	11.6
10	5.0	5	8	274.	12.8
10	5.0	5	9	277.	9.3
10	5.0	5	10	275.	11.4

CROP	STAGE	STATE	CRD	MEAN	STD DEV
10	6.0	5		304.	11.4
10	6.0	5	3	299.	14.3
10	6.0	5	4	304.	8.8
10	6.0	5	5	303.	13.0
10	6.0	5	6	304.	12.3
10	6.0	5	7	311.	12.3
10	6.0	5	8	301.	9.5
10	6.0	5	9	305.	13.2
10	6.0	5	10	304.	10.5

Arkansas



ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
	0.0	19	1	103.	7.5
	0.0	00	2	100.	5.5
	0.0	00	3	104.	4.4
	0.0	00	4	108.	4.0
	0.0	00	5	103.	0.5
	0.0	00	7	110.	2.4
	0.0	00	8	107.	2.2
	0.0	19	9	109.	0.8
	0.0			105.	22.0

CROP	STAGE	STATE	CRD	MEAN	STD DEV
	1.0	19	1	132.	4.0
	1.0	00	2	132.	5.5
	1.0	00	3	135.	5.5
	1.0	00	4	132.	5.1
	1.0	00	5	133.	5.9
	1.0	00	7	136.	6.6
	1.0	00	8	133.	6.4
	1.0	19	9	135.	6.4
	1.0			136.	7.3

CROP	STAGE	STATE	CRD	MEAN	STD DEV
	3.0	19	1	205.	5.9
	3.0	00	2	215.	3.9
	3.0	00	3	210.	5.1
	3.0	00	4	215.	3.9
	3.0	00	5	203.	4.9
	3.0	00	7	207.	4.8
	3.0	00	8	205.	4.2
	3.0	19	9	205.	4.2
	3.0			205.	6.0

CROP	STAGE	STATE	CRD	MEAN	STD DEV
	4.0	19	1	240.	1.4
	4.0	00	2	249.	2.8
	4.0	00	3	251.	2.8
	4.0	00	4	245.	1.4
	4.0	00	5	244.	0.7
	4.0	00	7	251.	4.2
	4.0	00	8	245.	0.7
	4.0	19	9	250.	2.8
	4.0			251.	0.0

Iowa

ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	5.0	19	1	257.	6.0
1	5.0	19	2	259.	5.8
1	5.0	19	3	258.	4.6
1	5.0	19	4	258.	4.5
1	5.0	19	5	257.	5.2
1	5.0	19	6	257.	5.5
1	5.0	19	7	256.	4.1
1	5.0	19	8	256.	5.6
1	5.0	19	9	257.	6.1

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	6.0	19	1	308. 176	10.3
1	6.0	19	2	310. 179	8.2
1	6.0	19	3	312. 177	8.4
1	6.0	19	4	308. 174	11.5
1	6.0	19	5	309. 177	8.7
1	6.0	19	6	310. 174	9.4
1	6.0	19	7	310. 177	11.2
1	6.0	19	8	312. 177	8.9
1	6.0	19	9	309. 172	7.5

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	0.0	19	1	103.	7.5
2	0.0	19	2	100.	5.5
2	0.0	19	3	109.	8.8
2	0.0	19	4	108.	9.0
2	0.0	19	5	103.	10.6
2	0.0	19	6	110.	12.4
2	0.0	19	7	107.	14.2
2	0.0	19	8	109.	19.8
2	0.0	19	9	105.	22.0

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	1.0	19	1	145.	3.4
2	1.0	19	2	147.	5.5
2	1.0	19	3	151.	4.6
2	1.0	19	4	146.	4.8
2	1.0	19	5	145.	7.1
2	1.0	19	6	150.	7.8
2	1.0	19	7	146.	5.3
2	1.0	19	8	150.	7.5
2	1.0	19	9	151.	7.8

Iowa

ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
W	3	10	1	216.	5.0
W	4	10	2	213.	5.5
W	5	10	3	212.	5.0
W	6	10	4	217.	5.0
W	7	10	5	214.	5.0
W	8	10	6	212.	5.5
W	9	10	7	217.	5.5
W	10	10	8	212.	5.5
W	11	10	9	215.	7.4

CROP	STAGE	STATE	CRD	MEAN	STD DEV
W	6	10	1	288.	8.7
W	7	10	2	292.	5.5
W	8	10	3	292.	5.7
W	9	10	4	292.	5.3
W	10	10	5	292.	5.7
W	11	10	6	292.	5.3
W	12	10	7	294.	8.0
W	13	10	8	296.	4.1
W	14	10	9	293.	6.9

CROP	STAGE	STATE	CRD	MEAN	STD DEV
W	1	10	1	108.	7.7
W	2	10	2	112.	7.5
W	3	10	3	111.	8.1
W	4	10	4	106.	7.5
W	5	10	5	106.	8.3
W	6	10	6	107.	8.0
W	7	10	7	105.	11.0
W	8	10	8	105.	16.2
W	9	10	9	108.	12.0

CROP	STAGE	STATE	CRD	MEAN	STD DEV
W	7	10	1	205.	5.2
W	8	10	2	210.	5.4
W	9	10	3	213.	5.5
W	10	10	4	204.	5.9
W	11	10	5	207.	5.4
W	12	10	6	209.	5.4
W	13	10	7	201.	6.7
W	14	10	8	204.	6.0
W	15	10	9	206.	6.3

Iowa

ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	1.0	21		134.	10.6
1	1.0	21	1	128.	13.9
1	1.0	21	2	134.	11.5
1	1.0	21	3	130.	10.5
1	1.0	21	4	140.	9.1
1	1.0	21	5	133.	8.1
1	1.0	21	6	139.	9.7
1	1.0	21	10	134.	9.9

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	3.0	21		200.	6.5
1	3.0	21	1	192.	2.2
1	3.0	21	2	196.	5.5
1	3.0	21	3	200.	7.5
1	3.0	21	4	203.	4.4
1	3.0	21	5	203.	5.5
1	3.0	21	6	203.	5.5
1	3.0	21	10	200.	4.7

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	3.5	21		219.	3.7
1	3.5	21	1	216.	2.4
1	3.5	21	2	216.	2.9
1	3.5	21	3	217.	2.4
1	3.5	21	4	223.	3.6
1	3.5	21	5	220.	3.5
1	3.5	21	6	220.	3.1
1	3.5	21	10	219.	2.4

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	4.0	21		245.	7.0
1	4.0	21	1	238.	10.2
1	4.0	21	2	243.	1.8
1	4.0	21	3	247.	5.0
1	4.0	21	4	249.	5.4
1	4.0	21	5	244.	8.1
1	4.0	21	6	249.	3.4
1	4.0	21	10	245.	4.2

Kentucky

ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	5.0	21		266.	6.6
1	5.0	21	1	261.	5.0
1	5.0	21	2	265.	8.1
1	5.0	21	3	265.	9.1
1	5.0	21	4	269.	4.7
1	5.0	21	5	269.	4.7
1	5.0	21	6	269.	4.7
1	5.0	21	10	266.	5.1

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	6.0	21		296.	9.2
1	6.0	21	1	283.	4.7
1	6.0	21	2	284.	6.5
1	6.0	21	3	297.	3.9
1	6.0	21	4	304.	3.9
1	6.0	21	5	298.	3.4
1	6.0	21	6	306.	2.1
1	6.0	21	10	296.	3.1

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	1.0	21		159.	7.1
2	1.0	21	1	163.	7.3
2	1.0	21	2	158.	7.1
2	1.0	21	3	160.	7.4
2	1.0	21	4	153.	8.1
2	1.0	21	5	160.	5.8
2	1.0	21	6	158.	6.5
2	1.0	21	10	159.	5.6

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	3.0	21		218.	7.9
2	3.0	21	1	217.	10.0
2	3.0	21	2	214.	7.1
2	3.0	21	3	221.	7.0
2	3.0	21	4	214.	8.0
2	3.0	21	5	220.	8.1
2	3.0	21	6	220.	8.1
2	3.0	21	10	218.	6.8

Kentucky



ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	4.0	21		227.	7.5
2	4.0	21	1	224.	6.9
2	4.0	21	2	226.	6.5
2	4.0	21	3	225.	6.0
2	4.0	21	4	223.	4.0
2	4.0	21	5	233.	9.2
2	4.0	21	6	234.	6.3
2	4.0	21	10	227.	5.4

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	5.0	21		281.	5.2
2	5.0	21	1	280.	3.9
2	5.0	21	2	279.	4.3
2	5.0	21	3	281.	1.9
2	5.0	21	4	281.	12.0
2	5.0	21	5	281.	1.9
2	5.0	21	6	281.	1.9
2	5.0	21	10	281.	2.4

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	6.0	21		305.	6.0
2	6.0	21	1	303.	6.3
2	6.0	21	2	300.	4.8
2	6.0	21	3	305.	3.8
2	6.0	21	4	307.	3.6
2	6.0	21	5	305.	6.0
2	6.0	21	6	312.	4.7
2	6.0	21	10	305.	3.7

Kentucky

ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	1.0	22		103.	8.0
1	1.0	22	1	105.	7.7
1	1.0	22	2	106.	6.2
1	1.0	22	3	102.	7.6
1	1.0	22	5	101.	9.8
1	1.0	22	6	104.	8.6
1	1.0	22	7	98.	9.4
1	1.0	22	10	103.	7.3

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	6.0	22		249.	12.0
1	6.0	22	1	255.	7.2
1	6.0	22	2	255.	16.8
1	6.0	22	3	240.	6.4
1	6.0	22	5	247.	8.9
1	6.0	22	6	258.	10.1
1	6.0	22	7	241.	11.3
1	6.0	22	10	249.	8.6

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	1.0	22		147.	9.0
2	1.0	22	1	143.	11.4
2	1.0	22	2	150.	14.2
2	1.0	22	3	145.	9.6
2	1.0	22	4	145.	6.4
2	1.0	22	5	143.	7.4
2	1.0	22	6	149.	4.5
2	1.0	22	7	151.	8.0
2	1.0	22	10	147.	8.2

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	6.0	22		296.	5.6
2	6.0	22	1	301.	4.9
2	6.0	22	2	295.	7.0
2	6.0	22	3	291.	4.9
2	6.0	22	4	300.	1.6
2	6.0	22	5	294.	3.1
2	6.0	22	6	299.	4.2
2	6.0	22	7	291.	3.2
2	6.0	22	10	296.	3.1

CROP	STAGE	STATE	CRD	MEAN	STD DEV
4	1.0	22		149.	13.2
4	1.0	22	3	149.	18.4
4	1.0	22	4	149.	7.4
4	1.0	22	10	149.	12.0

Louisiana

ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
4	6.0	22		266.	10.6
4	6.0	22	3	269.	11.5
4	6.0	22	4	264.	10.2
4	6.0	22	10	266.	9.7

CROP	STAGE	STATE	CRD	MEAN	STD DEV
9	1.0	22		109.	11.4
9	1.0	22	3	122.	10.8
9	1.0	22	5	108.	6.9
9	1.0	22	7	99.	5.1
9	1.0	22	8	108.	9.3
9	1.0	22	10	109.	2.9

CROP	STAGE	STATE	CRD	MEAN	STD DEV
9	7.0	22		244.	15.6
9	7.0	22	3	262.	11.7
9	7.0	22	5	243.	7.4
9	7.0	22	7	225.	3.7
9	7.0	22	8	244.	9.0
9	7.0	22	10	243.	4.9

CROP	STAGE	STATE	CRD	MEAN	STD DEV
10	1.0	22		126.	9.0
10	1.0	22	1	123.	11.6
10	1.0	22	2	127.	7.9
10	1.0	22	3	126.	9.4
10	1.0	22	4	127.	9.1
10	1.0	22	5	127.	10.2
10	1.0	22	10	126.	8.7

CROP	STAGE	STATE	CRD	MEAN	STD DEV
10	6.0	22		297.	8.8
10	6.0	22	1	297.	8.7
10	6.0	22	2	297.	9.2
10	6.0	22	3	297.	11.3
10	6.0	22	4	302.	10.2
10	6.0	22	5	293.	3.9
10	6.0	22	10	297.	8.3

Louisiana



ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	1.0	26		143.	5.5
1	1.0	26	1	141.	4.4
1	1.0	26	2	140.	5.8
1	1.0	26	3	148.	6.1
1	1.0	26	4	144.	6.6
1	1.0	26	5	140.	4.4
1	1.0	26	6	140.	4.8
1	1.0	26	7	143.	5.7
1	1.0	26	8	144.	2.2
1	1.0	26	9	147.	4.4
1	1.0	26	10	143.	3.5

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	3.0	26		214.	6.8
1	3.0	26	1	220.	7.3
1	3.0	26	2	217.	3.6
1	3.0	26	3	217.	4.4
1	3.0	26	4	214.	9.8
1	3.0	26	5	211.	6.9
1	3.0	26	6	211.	6.9
1	3.0	26	7	213.	7.3
1	3.0	26	8	213.	6.5
1	3.0	26	9	213.	7.3
1	3.0	26	10	214.	6.2

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	3.5	26		237.	6.8
1	3.5	26	1	248.	8.2
1	3.5	26	2	239.	6.9
1	3.5	26	3	235.	4.4
1	3.5	26	4	239.	6.9
1	3.5	26	5	231.	4.7
1	3.5	26	6	235.	4.7
1	3.5	26	7	235.	4.7
1	3.5	26	8	235.	4.7
1	3.5	26	9	236.	4.3
1	3.5	26	10	237.	4.2

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	4.0	26		255.	7.5
1	4.0	26	1	263.	5.7
1	4.0	26	2	260.	7.9
1	4.0	26	3	255.	3.8
1	4.0	26	4	257.	12.6
1	4.0	26	5	253.	7.9
1	4.0	26	6	253.	6.9
1	4.0	26	7	252.	4.4
1	4.0	26	8	252.	4.4
1	4.0	26	9	253.	6.9
1	4.0	26	10	255.	5.8

Michigan

ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	5.0	26		276.	6.5
1	5.0	26	2	281.	3.6
1	5.0	26	7	271.	6.3
1	5.0	26	8	276.	6.0
1	5.0	26	10	276.	3.7

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	6.0	26		308.	7.3
1	6.0	26	1	306.	6.3
1	6.0	26	2	309.	9.1
1	6.0	26	3	308.	11.2
1	6.0	26	4	308.	10.2
1	6.0	26	5	304.	9.1
1	6.0	26	6	309.	8.9
1	6.0	26	7	306.	4.3
1	6.0	26	8	307.	2.6
1	6.0	26	9	309.	5.2
1	6.0	26	10	308.	6.0

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	4.0	26		230.	7.7
2	4.0	26	4	231.	7.4
2	4.0	26	5	232.	8.5
2	4.0	26	6	227.	9.4
2	4.0	26	7	229.	8.6
2	4.0	26	8	228.	8.0
2	4.0	26	9	232.	6.6
2	4.0	26	10	230.	7.2

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	5.0	26		268.	8.1
2	5.0	26	4	256.	6.3
2	5.0	26	5	274.	7.9
2	5.0	26	6	270.	4.7
2	5.0	26	7	273.	4.8
2	5.0	26	8	259.	4.7
2	5.0	26	9	267.	6.4
2	5.0	26	10	268.	1.8

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	6.0	26		299.	7.7
2	6.0	26	4	300.	10.4
2	6.0	26	5	297.	5.7
2	6.0	26	6	305.	11.0
2	6.0	26	7	301.	4.4
2	6.0	26	8	295.	5.8
2	6.0	26	9	295.	4.0
2	6.0	26	10	299.	5.6

Michigan

ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
S	1.0	26		126.	9.3
S	1.0	26	1	136.	5.0
S	1.0	26	2	129.	7.3
S	1.0	26	3	126.	9.1
S	1.0	26	4	124.	9.6
S	1.0	26	5	126.	11.0
S	1.0	26	6	124.	10.6
S	1.0	26	7	122.	9.2
S	1.0	26	8	124.	10.6
S	1.0	26	9	124.	10.6
S	1.0	26	10	126.	8.8

CROP	STAGE	STATE	CRD	MEAN	STD DEV
S	4.0	26		184.	7.2
S	4.0	26	1	196.	4.4
S	4.0	26	2	189.	3.6
S	4.0	26	3	189.	4.8
S	4.0	26	4	183.	7.2
S	4.0	26	5	182.	4.8
S	4.0	26	6	182.	4.8
S	4.0	26	7	178.	5.0
S	4.0	26	8	180.	7.3
S	4.0	26	9	182.	4.8
S	4.0	26	10	184.	4.5

CROP	STAGE	STATE	CRD	MEAN	STD DEV
S	7.0	26		224.	8.0
S	7.0	26	1	235.	9.4
S	7.0	26	2	228.	4.7
S	7.0	26	3	229.	8.0
S	7.0	26	4	224.	8.9
S	7.0	26	5	234.	8.9
S	7.0	26	6	221.	6.0
S	7.0	26	7	220.	4.3
S	7.0	26	8	220.	4.3
S	7.0	26	9	220.	4.3
S	7.0	26	10	224.	4.9

CROP	STAGE	STATE	CRD	MEAN	STD DEV
B	1.0	26		274.	7.9
B	1.0	26	1	268.	7.6
B	1.0	26	2	268.	2.4
B	1.0	26	3	265.	3.0
B	1.0	26	4	274.	5.2
B	1.0	26	5	277.	11.2
B	1.0	26	6	278.	6.2
B	1.0	26	7	280.	2.4
B	1.0	26	8	280.	6.4
B	1.0	26	9	280.	6.7
B	1.0	26	10	274.	3.2

Michigan

ORIGINAL PAGE IS  
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CROP	STAGE	STATE	CRD	MEAN	STD DEV
8	4.0	26		165.	8.2
8	4.0	26	1	179.	6.0
8	4.0	26	2	165.	6.0
8	4.0	26	3	166.	7.1
8	4.0	26	4	165.	6.0
8	4.0	26	5	164.	9.0
8	4.0	26	6	165.	6.0
8	4.0	26	7	159.	8.2
8	4.0	26	8	161.	6.1
8	4.0	26	9	164.	6.8
8	4.0	26	10	165.	5.8

CROP	STAGE	STATE	CRD	MEAN	STD DEV
8	6.0	26		188.	6.1
8	6.0	26	1	194.	3.4
8	6.0	26	2	190.	5.2
8	6.0	26	3	190.	5.5
8	6.0	26	4	186.	6.6
8	6.0	26	5	185.	5.0
8	6.0	26	6	189.	4.0
8	6.0	26	7	183.	6.4
8	6.0	26	8	187.	6.8
8	6.0	26	9	187.	6.8
8	6.0	26	10	188.	4.6

CROP	STAGE	STATE	CRD	MEAN	STD DEV
8	7.0	26		215.	10.5
8	7.0	26	1	218.	8.1
8	7.0	26	2	217.	7.9
8	7.0	26	3	220.	5.0
8	7.0	26	4	215.	8.0
8	7.0	26	5	210.	8.3
8	7.0	26	6	210.	8.3
8	7.0	26	7	215.	15.7
8	7.0	26	8	215.	15.7
8	7.0	26	9	215.	15.7
8	7.0	26	10	215.	9.3

CROP	STAGE	STATE	CRD	MEAN	STD DEV
12	1.0	26		174.	8.4
12	1.0	26	1	186.	7.3
12	1.0	26	2	183.	4.4
12	1.0	26	3	185.	6.5
12	1.0	26	4	178.	6.3
12	1.0	26	5	176.	8.9
12	1.0	26	6	173.	7.3
12	1.0	26	7	173.	7.3
12	1.0	26	8	172.	7.6
12	1.0	26	9	172.	7.6
12	1.0	26	10	178.	6.6

Michigan

ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
12	2.0	26	1	219.	9.7
12	2.0	26	2	229.	12.0
12	2.0	26	3	225.	9.1
12	2.0	26	4	227.	9.9
12	2.0	26	5	220.	6.5
12	2.0	26	6	217.	9.8
12	2.0	26	7	214.	6.6
12	2.0	26	8	214.	6.6
12	2.0	26	9	213.	6.5
12	2.0	26	10	214.	4.7
12	2.0	26		219.	7.5

Michigan



ORIGINAL PAGE IS  
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CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	1.0	28	1	111.	12.3
1	2.0	28	2	103.	7.8
1	3.0	28	3	117.	9.7
1	4.0	28	4	123.	10.3
1	5.0	28	5	108.	11.2
1	6.0	28	6	120.	15.8
1	7.0	28	7	115.	11.3
1	8.0	28	8	110.	10.6
1	9.0	28	9	104.	7.2
1	10.0	28	10	99.	5.8
1	1.0	28	10	111.	8.3

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	4.0	28	1	217.	8.9
1	4.0	28	2	215.	10.4
1	4.0	28	3	219.	4.6
1	4.0	28	4	224.	11.9
1	4.0	28	5	215.	8.6
1	4.0	28	6	223.	13.1
1	4.0	28	7	217.	5.3
1	4.0	28	8	210.	5.8
1	4.0	28	9	215.	4.9
1	4.0	28	10	212.	6.8
1	4.0	28	10	217.	6.6

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	5.0	28	1	237.	10.1
1	5.0	28	2	235.	10.1
1	5.0	28	3	246.	8.6
1	5.0	28	4	245.	10.4
1	5.0	28	5	232.	9.3
1	5.0	28	6	245.	10.3
1	5.0	28	7	239.	7.8
1	5.0	28	8	231.	8.1
1	5.0	28	9	234.	5.8
1	5.0	28	10	228.	6.5
1	5.0	28	10	237.	7.0

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	6.0	28	1	274.	12.9
1	6.0	28	2	274. <sup>171</sup>	10.4
1	6.0	28	3	274. <sup>157</sup>	10.1
1	6.0	28	4	286. <sup>153</sup>	14.1
1	6.0	28	5	258. <sup>155</sup>	14.3
1	6.0	28	6	278. <sup>152</sup>	13.9
1	6.0	28	7	276. <sup>151</sup>	11.1
1	6.0	28	8	266. <sup>156</sup>	8.9
1	6.0	28	9	279. <sup>175</sup>	10.4
1	6.0	28	10	276. <sup>177</sup>	9.6
1	6.0	28	10	274.	9.7

Mississippi

ORIGINAL PAGE IS  
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CROP	STAGE	STATE	CRD	MEAN	STD DEV
N	0.0	28	1	153.	10.4
N	0.0	28	2	155.	9.0
N	0.0	28	3	156.	4.2
N	0.0	28	4	158.	6.1
N	0.0	28	5	153.	9.2
N	0.0	28	6	155.	9.0
N	0.0	28	7	147.	5.5
N	0.0	28	8	152.	4.6
N	0.0	28	9	152.	4.0
N	0.0	28	10	150.	5.0
N	0.0	28	10	153.	6.5

CROP	STAGE	STATE	CRD	MEAN	STD DEV
N	3.0	28	1	210.	7.8
N	0.0	28	2	210.	13.4
N	0.0	28	3	212.	9.8
N	0.0	28	4	216.	7.9
N	0.0	28	5	214.	8.2
N	0.0	28	6	208.	5.8
N	0.0	28	7	204.	4.5
N	0.0	28	8	204.	3.9
N	0.0	28	9	210.	7.5
N	0.0	28	10	207.	2.2
N	0.0	28	10	210.	6.2

CROP	STAGE	STATE	CRD	MEAN	STD DEV
N	4.0	28	1	226.	5.8
N	0.0	28	2	229.	7.5
N	0.0	28	3	227.	7.3
N	0.0	28	4	232.	3.7
N	0.0	28	5	231.	5.4
N	0.0	28	6	224.	4.9
N	0.0	28	7	222.	3.6
N	0.0	28	8	225.	5.0
N	0.0	28	9	223.	2.3
N	0.0	28	10	222.	2.2
N	0.0	28	10	226.	2.2

CROP	STAGE	STATE	CRD	MEAN	STD DEV
N	5.0	28	1	270.	9.3
N	0.0	28	2	274.	12.8
N	0.0	28	3	274.	12.9
N	0.0	28	4	272.	12.8
N	0.0	28	5	271.	12.9
N	0.0	28	6	269.	12.8
N	0.0	28	7	266.	12.1
N	0.0	28	8	269.	12.1
N	0.0	28	9	267.	12.9
N	0.0	28	10	265.	12.7
N	0.0	28	10	270.	12.4

Mississippi

ORIGINAL PAGE IS  
OF POOR QUALITY

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	6.0	28	1	304.	7.4
2	6.0	28	2	310.	11.7
2	6.0	28	3	307.	6.9
2	6.0	28	4	310.	5.9
2	6.0	28	5	301.	5.9
2	6.0	28	6	303.	5.3
2	6.0	28	7	303.	5.5
2	6.0	28	8	301.	4.6
2	6.0	28	9	302.	9.3
2	6.0	28	10	302.	6.6
2	6.0	28	10	304.	5.1

CROP	STAGE	STATE	CRD	MEAN	STD DEV
4	1.0	28	1	146.	10.4
4	1.0	28	2	143.	7.8
4	1.0	28	3	149.	13.7
4	1.0	28	4	149.	10.1
4	1.0	28	5	141.	6.7
4	1.0	28	6	142.	2.8
4	1.0	28	7	154.	23.9
4	1.0	28	8	145.	5.5
4	1.0	28	9	147.	5.9
4	1.0	28	10	143.	4.6
4	1.0	28	10	146.	5.3

CROP	STAGE	STATE	CRD	MEAN	STD DEV
4	5.0	28	1	240.	9.8
4	5.0	28	2	239.	8.1
4	5.0	28	3	235.	6.9
4	5.0	28	4	240.	12.2
4	5.0	28	5	243.	10.1
4	5.0	28	6	239.	10.3
4	5.0	28	7	240.	12.9
4	5.0	28	8	244.	11.8
4	5.0	28	9	240.	11.5
4	5.0	28	10	240.	10.1
4	5.0	28	10	240.	8.6

CROP	STAGE	STATE	CRD	MEAN	STD DEV
4	6.0	28	1	265.	10.9
4	6.0	28	2	261.	10.3
4	6.0	28	3	267.	9.6
4	6.0	28	4	265.	14.2
4	6.0	28	5	265.	8.5
4	6.0	28	6	265.	5.6
4	6.0	28	7	268.	9.2
4	6.0	28	8	266.	13.8
4	6.0	28	9	258.	12.9
4	6.0	28	10	265.	5.5

Mississippi



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CROP	STAGE	STATE	CRD	MEAN	STD DEV
10	2.0	2A	1	177.	8.7
00	2.0	2A	2	177.	8.4
00	2.0	2A	3	179.	7.2
00	2.0	2A	4	183.	7.9
00	2.0	2A	5	178.	10.5
00	2.0	2A	6	178.	10.4
00	2.0	2A	7	177.	5.1
00	2.0	2A	8	175.	10.1
00	2.0	2A	9	173.	9.1
00	2.0	2A	10	174.	11.5
00	2.0	2A	10	177.	8.0

CROP	STAGE	STATE	CRD	MEAN	STD DEV
10	4.0	2A	1	205.	9.9
00	4.0	2A	2	205.	11.5
00	4.0	2A	3	206.	11.5
00	4.0	2A	4	212.	9.2
00	4.0	2A	5	198.	14.0
00	4.0	2A	6	207.	8.8
00	4.0	2A	7	210.	7.5
00	4.0	2A	8	201.	6.2
00	4.0	2A	9	204.	8.6
00	4.0	2A	10	202.	12.2
00	4.0	2A	10	205.	8.8

CROP	STAGE	STATE	CRD	MEAN	STD DEV
10	5.0	2A	1	257.	12.8
00	5.0	2A	2	256.	14.3
00	5.0	2A	3	263.	19.4
00	5.0	2A	4	261.	14.3
00	5.0	2A	5	255.	12.5
00	5.0	2A	6	257.	12.7
00	5.0	2A	7	260.	13.7
00	5.0	2A	8	255.	13.0
00	5.0	2A	9	254.	12.6
00	5.0	2A	10	251.	7.5
00	5.0	2A	10	257.	12.2

Mississippi

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CROP	STAGE	STATE	CRD	MEAN	STD DEV
9	1.0	28		118.	11.1
9	1.0	28	1	117.	9.1
9	1.0	28	4	120.	13.8
9	1.0	28	10	118.	11.4

CROP	STAGE	STATE	CRD	MEAN	STD DEV
9	2.0	28		132.	9.3
9	2.0	28	1	133.	7.5
9	2.0	28	4	131.	11.7
9	2.0	28	10	132.	9.1

CROP	STAGE	STATE	CRD	MEAN	STD DEV
9	4.0	28		225.	8.1
9	4.0	28	1	229.	6.3
9	4.0	28	4	221.	8.4
9	4.0	28	10	225.	6.8

CROP	STAGE	STATE	CRD	MEAN	STD DEV
9	7.0	28		273.	7.5
9	7.0	28	1	273.	8.1
9	7.0	28	4	273.	7.9
9	7.0	28	10	273.	7.0

CROP	STAGE	STATE	CRD	MEAN	STD DEV
10	1.0	28		126.	9.0
10	1.0	28	1	124.	8.5
10	1.0	28	2	128.	7.8
10	1.0	28	3	132.	8.3
10	1.0	28	4	124.	8.1
10	1.0	28	5	127.	8.9
10	1.0	28	6	124.	10.7
10	1.0	28	7	129.	9.1
10	1.0	28	8	127.	9.2
10	1.0	28	9	121.	12.7
10	1.0	28	10	126.	8.4

Mississippi

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CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	1.0	39	1	138.	8.3
1	1.0	39	2	135.	5.6
1	1.0	39	3	139.	9.2
1	1.0	39	4	142.	8.3
1	1.0	39	5	137.	9.4
1	1.0	39	6	135.	9.2
1	1.0	39	7	138.	9.1
1	1.0	39	8	139.	9.7
1	1.0	39	9	139.	10.4
1	1.0	39	10	138.	9.8

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	3.0	39	1	206.	3.8
1	3.0	39	2	205.	2.9
1	3.0	39	3	206.	2.6
1	3.0	39	4	211.	2.9
1	3.0	39	5	205.	3.8
1	3.0	39	6	206.	4.3
1	3.0	39	7	207.	4.4
1	3.0	39	8	204.	3.8
1	3.0	39	9	208.	5.0
1	3.0	39	10	208.	3.0

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	3.5	39	1	228.	5.1
1	3.5	39	2	227.	4.7
1	3.5	39	3	229.	9.1
1	3.5	39	4	234.	5.7
1	3.5	39	5	226.	3.4
1	3.5	39	6	229.	3.6
1	3.5	39	7	228.	5.5
1	3.5	39	8	224.	4.3
1	3.5	39	9	225.	5.0
1	3.5	39	10	229.	4.6

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	4.0	39	1	243.	7.1
1	4.0	39	2	241.	6.2
1	4.0	39	3	242.	7.6
1	4.0	39	4	250.	4.4
1	4.0	39	5	241.	8.3
1	4.0	39	6	245.	4.9
1	4.0	39	7	246.	5.0
1	4.0	39	8	240.	9.2
1	4.0	39	9	244.	9.6
1	4.0	39	10	242.	7.6

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CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	5.0	39		263.	6.3
1	5.0	39	1	260.	2.2
1	5.0	39	2	265.	4.7
1	5.0	39	3	268.	1.4
1	5.0	39	4	261.	3.7
1	5.0	39	5	264.	6.3
1	5.0	39	6	267.	9.1
1	5.0	39	7	255.	8.2
1	5.0	39	8	264.	6.4
1	5.0	39	9	264.	4.7
1	5.0	39	10	263.	2.8

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	6.0	39		307.	4.6
1	6.0	39	1	301.	7.5
1	6.0	39	2	309.	4.5
1	6.0	39	3	310.	4.3
1	6.0	39	4	305.	1.9
1	6.0	39	5	309.	3.0
1	6.0	39	6	306.	2.6
1	6.0	39	7	305.	1.3
1	6.0	39	8	309.	4.5
1	6.0	39	9	308.	5.4
1	6.0	39	10	307.	2.2

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	1.0	39		148.	6.8
2	1.0	39	1	147.	7.5
2	1.0	39	2	149.	7.7
2	1.0	39	3	151.	5.9
2	1.0	39	4	145.	7.8
2	1.0	39	5	144.	7.2
2	1.0	39	6	150.	7.8
2	1.0	39	7	146.	7.7
2	1.0	39	8	150.	6.5
2	1.0	39	9	152.	5.9
2	1.0	39	10	148.	7.0

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	3.0	39		211.	5.2
2	3.0	39	1	211.	5.4
2	3.0	39	2	214.	5.6
2	3.0	39	3	213.	6.1
2	3.0	39	4	210.	5.9
2	3.0	39	5	210.	5.5
2	3.0	39	6	209.	4.5
2	3.0	39	7	211.	6.7
2	3.0	39	8	211.	5.2
2	3.0	39	9	211.	5.1
2	3.0	39	10	211.	5.4

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CROP	STAGE	STATE	CRD	MEAN	STD DEV
N	4.0	39		235.	4.2
N	4.0	39	1	234.	2.6
N	4.0	39	2	236.	3.6
N	4.0	39	3	237.	1.3
N	4.0	39	4	235.	2.9
N	4.0	39	5	236.	4.8
N	4.0	39	6	235.	3.2
N	4.0	39	7	230.	5.1
N	4.0	39	8	234.	7.0
N	4.0	39	9	234.	3.4
N	4.0	39	10	235.	2.7

CROP	STAGE	STATE	CRD	MEAN	STD DEV
N	5.0	39		263.	6.8
N	5.0	39	1	254.	3.4
N	5.0	39	2	267.	5.7
N	5.0	39	3	269.	9.3
N	5.0	39	4	259.	4.3
N	5.0	39	5	266.	6.7
N	5.0	39	6	267.	8.8
N	5.0	39	7	259.	4.4
N	5.0	39	8	260.	5.4
N	5.0	39	9	264.	6.6
N	5.0	39	10	263.	3.9

CROP	STAGE	STATE	CRD	MEAN	STD DEV
N	6.0	39		295.	4.0
N	6.0	39	1	291.	2.4
N	6.0	39	2	295.	2.9
N	6.0	39	3	299.	3.3
N	6.0	39	4	293.	3.5
N	6.0	39	5	294.	3.8
N	6.0	39	6	298.	4.0
N	6.0	39	7	294.	4.4
N	6.0	39	8	296.	3.9
N	6.0	39	9	295.	3.4
N	6.0	39	10	295.	2.4

CROP	STAGE	STATE	CRD	MEAN	STD DEV
H	1.0	39		289.	5.6
H	1.0	39	1	287.	4.4
H	1.0	39	2	285.	1.4
H	1.0	39	3	286.	5.4
H	1.0	39	4	285.	3.5
H	1.0	39	5	290.	2.2
H	1.0	39	6	284.	7.1
H	1.0	39	7	240.	2.4
H	1.0	39	8	296.	3.9
H	1.0	39	9	296.	3.2
H	1.0	39	10	289.	1.5

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CROP	STAGE	STATE	CRD	MEAN	STD DEV
B	2.0	39	1	301.	4.0
B	2.0	39	2	300.	1.7
B	2.0	39	3	300.	4.6
B	2.0	39	4	300.	5.1
B	2.0	39	5	299.	2.9
B	2.0	39	6	302.	2.6
B	2.0	39	7	300.	2.6
B	2.0	39	8	301.	2.4
B	2.0	39	9	304.	5.4
B	2.0	39	10	305.	3.9
B	2.0	39		301.	1.2

CROP	STAGE	STATE	CRD	MEAN	STD DEV
B	4.0	39	1	150.	5.4
B	4.0	39	2	151.	5.9
B	4.0	39	3	153.	5.7
B	4.0	39	4	156.	7.1
B	4.0	39	5	147.	5.5
B	4.0	39	6	150.	5.3
B	4.0	39	7	150.	9.0
B	4.0	39	8	147.	6.6
B	4.0	39	9	145.	8.3
B	4.0	39	10	150.	2.9
B	4.0	39		150.	6.0

CROP	STAGE	STATE	CRD	MEAN	STD DEV
B	6.0	39	1	173.	5.1
B	6.0	39	2	173.	5.5
B	6.0	39	3	175.	2.8
B	6.0	39	4	177.	3.1
B	6.0	39	5	171.	6.5
B	6.0	39	6	172.	6.2
B	6.0	39	7	175.	3.0
B	6.0	39	8	172.	6.6
B	6.0	39	9	168.	3.7
B	6.0	39	10	175.	5.8
B	6.0	39		173.	4.5

CROP	STAGE	STATE	CRD	MEAN	STD DEV
B	7.0	39	1	198.	6.0
B	7.0	39	2	196.274	4.2
B	7.0	39	3	200.220	3.8
B	7.0	39	4	207.201	8.2
B	7.0	39	5	193.272	5.3
B	7.0	39	6	195.200	4.1
B	7.0	39	7	201.182	4.3
B	7.0	39	8	194.200	3.8
B	7.0	39	9	195.200	3.3
B	7.0	39	10	200.200	3.0
B	7.0	39		198.	3.4

Ohio

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CROP	STAGE	STATE	CRD	MEAN	STD DEV
11	1.0	39		162.	7.3
11	1.0	39	1	160.	6.2
11	1.0	39	2	167.	5.4
11	1.0	39	3	167.	9.1
11	1.0	39	4	159.	6.9
11	1.0	39	5	164.	6.2
11	1.0	39	6	169.	9.7
11	1.0	39	7	161.	5.7
11	1.0	39	8	167.	3.1
11	1.0	39	9	164.	3.2
11	1.0	39	10	162.	6.8

CROP	STAGE	STATE	CRD	MEAN	STD DEV
11	2.0	39		202.	6.6
11	2.0	39	1	197.	4.2
11	2.0	39	2	202.	5.0
11	2.0	39	3	211.	5.7
11	2.0	39	4	197.	4.1
11	2.0	39	5	199.	3.9
11	2.0	39	6	206.	3.7
11	2.0	39	7	194.	7.9
11	2.0	39	8	198.	5.6
11	2.0	39	9	207.	4.7
11	2.0	39	10	202.	3.7

CROP	STAGE	STATE	CRD	MEAN	STD DEV
12	1.0	39		168.	6.9
12	1.0	39	1	167.	9.0
12	1.0	39	2	170.	8.3
12	1.0	39	3	173.	6.9
12	1.0	39	4	166.	8.3
12	1.0	39	5	169.	4.6
12	1.0	39	6	169.	9.1
12	1.0	39	7	167.	5.4
12	1.0	39	8	165.	5.2
12	1.0	39	9	169.	7.8
12	1.0	39	10	168.	6.5

CROP	STAGE	STATE	CRD	MEAN	STD DEV
12	2.0	39		213.	6.3
12	2.0	39	1	211.	6.1
12	2.0	39	2	214.	5.3
12	2.0	39	3	220.	7.5
12	2.0	39	4	206.	4.8
12	2.0	39	5	212.	1.4
12	2.0	39	6	214.	3.9
12	2.0	39	7	204.	7.5
12	2.0	39	8	216.	5.4
12	2.0	39	9	215.	5.1
12	2.0	39	10	213.	2.6

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CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	1.0	55	1	139.	5.5
1	1.0	55	2	140.	4.7
1	1.0	55	3	141.	4.4
1	1.0	55	4	142.	3.8
1	1.0	55	5	136.	4.3
1	1.0	55	6	139.	4.8
1	1.0	55	7	140.	6.2
1	1.0	55	8	137.	7.2
1	1.0	55	9	138.	7.2
1	1.0	55	10	140.	7.3
1	1.0	55		139.	5.2

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	3.0	55	1	211.	7.0
1	3.0	55	2	212.	7.0
1	3.0	55	3	212.	7.3
1	3.0	55	4	215.	5.8
1	3.0	55	5	207.	8.0
1	3.0	55	6	210.	7.8
1	3.0	55	7	212.	7.2
1	3.0	55	8	207.	8.6
1	3.0	55	9	208.	6.7
1	3.0	55	10	210.	6.3
1	3.0	55		211.	7.0

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	3.5	55	1	236.	9.4
1	3.5	55	2	239.	8.9
1	3.5	55	3	240.	9.3
1	3.5	55	4	242.	7.2
1	3.5	55	5	231.	9.4
1	3.5	55	6	237.	10.5
1	3.5	55	7	239.	9.8
1	3.5	55	8	232.	10.6
1	3.5	55	9	232.	9.0
1	3.5	55	10	234.	9.6
1	3.5	55		236.	9.2

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	4.0	55	1	247.	8.7
1	4.0	55	2	249.	11.4
1	4.0	55	3	250.	9.3
1	4.0	55	4	251.	6.2
1	4.0	55	5	242.	10.0
1	4.0	55	6	246.	9.4
1	4.0	55	7	247.	7.9
1	4.0	55	8	244.	9.0
1	4.0	55	9	244.	8.0
1	4.0	55	10	246.	9.2
1	4.0	55		247.	8.8

Wisconsin



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CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	5.0	55		254.	8.0
1	5.0	55	1	255.	8.2
1	5.0	55	2	254.	8.4
1	5.0	55	3	254.	6.6
1	5.0	55	4	250.	10.6
1	5.0	55	5	253.	7.7
1	5.0	55	6	255.	8.8
1	5.0	55	7	251.	8.7
1	5.0	55	8	251.	6.9
1	5.0	55	9	254.	7.4
1	5.0	55	10	254.	8.0

CROP	STAGE	STATE	CRD	MEAN	STD DEV
1	6.0	55		301.	7.1
1	6.0	55	1	301.72	5.7
1	6.0	55	2	302.51	4.0
1	6.0	55	3	303.16	10.5
1	6.0	55	4	299.16	5.4
1	6.0	55	5	298.57	8.0
1	6.0	55	6	299.57	7.6
1	6.0	55	7	301.72	5.3
1	6.0	55	8	302.10	5.5
1	6.0	55	9	306.17	6.5
1	6.0	55	10	301.	6.5

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	1.0	55		150.	5.5
2	1.0	55	1	150.	4.9
2	1.0	55	2	153.	4.5
2	1.0	55	3	153.	3.7
2	1.0	55	4	151.	3.4
2	1.0	55	5	151.	4.0
2	1.0	55	6	149.	5.5
2	1.0	55	7	148.	6.1
2	1.0	55	8	151.	8.7
2	1.0	55	9	144.	7.2
2	1.0	55	10	150.	5.1

CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	5.0	55		269.	5.2
2	5.0	55	1	270.	6.1
2	5.0	55	2	273.	5.3
2	5.0	55	3	273.	5.4
2	5.0	55	4	266.	4.4
2	5.0	55	5	267.	5.6
2	5.0	55	6	264.	4.5
2	5.0	55	7	266.	5.0
2	5.0	55	8	269.	3.4
2	5.0	55	9	268.	3.7
2	5.0	55	10	269.	4.7

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CROP	STAGE	STATE	CRD	MEAN	STD DEV
2	6.0	55		299.	5.8
2	6.0	55	1	298.	4.9
2	6.0	55	2	302.	6.9
2	6.0	55	3	303.	5.9
2	6.0	55	4	298.	5.4
2	6.0	55	5	298.	5.0
2	6.0	55	6	297.	6.3
2	6.0	55	7	299.	5.8
2	6.0	55	8	297.	4.8
2	6.0	55	9	295.	7.5
2	6.0	55	10	299.	5.2

CROP	STAGE	STATE	CRD	MEAN	STD DEV
5	1.0	55		122.	9.0
5	1.0	55	1	124.	6.0
5	1.0	55	2	128.	5.4
5	1.0	55	3	127.	6.6
5	1.0	55	4	120.	7.6
5	1.0	55	5	124.	6.8
5	1.0	55	6	125.	8.2
5	1.0	55	7	117.	10.3
5	1.0	55	8	116.	10.4
5	1.0	55	9	115.	12.8
5	1.0	55	10	122.	7.1

CROP	STAGE	STATE	CRD	MEAN	STD DEV
5	4.0	55		180.	7.7
5	4.0	55	1	183.	6.2
5	4.0	55	2	185.	6.5
5	4.0	55	3	184.	4.8
5	4.0	55	4	176.	7.9
5	4.0	55	5	180.	7.6
5	4.0	55	6	183.	7.2
5	4.0	55	7	176.	9.4
5	4.0	55	8	176.	8.5
5	4.0	55	9	176.	8.3
5	4.0	55	10	180.	7.3

CROP	STAGE	STATE	CRD	MEAN	STD DEV
5	7.0	55		223.	7.0
5	7.0	55	1	225.	6.7
5	7.0	55	2	230.	4.6
5	7.0	55	3	232.	6.1
5	7.0	55	4	219.	4.7
5	7.0	55	5	223.	5.4
5	7.0	55	6	226.	4.8
5	7.0	55	7	218.	5.6
5	7.0	55	8	219.	5.5
5	7.0	55	9	219.	6.3
5	7.0	55	10	223.	5.2

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CROP	STAGE	STATE	CRD	MEAN	STD DEV
11	1.0	55		174.	7.8
11	1.0	55	1	178.	7.6
11	1.0	55	2	177.	5.5
11	1.0	55	3	179.	5.7
11	1.0	55	4	172.	8.3
11	1.0	55	5	175.	6.5
11	1.0	55	6	174.	5.4
11	1.0	55	7	171.	9.7
11	1.0	55	8	171.	10.5
11	1.0	55	9	172.	9.5
11	1.0	55	10	174.	7.6

CROP	STAGE	STATE	CRD	MEAN	STD DEV
11	2.0	55		218.	9.9
11	2.0	55	1	224.	8.4
11	2.0	55	2	225.	9.2
11	2.0	55	3	227.	10.4
11	2.0	55	4	214.	9.0
11	2.0	55	5	219.	9.9
11	2.0	55	6	215.	7.3
11	2.0	55	7	215.	7.9
11	2.0	55	8	211.	7.9
11	2.0	55	9	213.	9.9
11	2.0	55	10	218.	8.6